Part II
Pass/No Record Grading

A. Policy Background

The MIT faculty adopted a Pass/Fail grading system for freshmen as an experiment in 1968, making it permanent in 1973. Important changes occurred in Fall Term 1990, when the bar for receiving a P was raised and the credit limit was lowered, and 1995, when narrative evaluations of all freshmen were abandoned in favor of a more limited “Fifth Week Flag” of freshmen in danger of failing.

As currently written, the Regulations of the Faculty (section 2.63) contain five grading provisions that apply specially to first-year undergraduate students:

1. The only passing grade permanently recorded by the Registrar is P.

2. The non-passing grades of D, F, O, and OX are recorded by the Registrar for use within the Institute only and do not appear on official Institute transcripts.

3. At the beginning of the sixth week of each term, instructors of first-year students notify in writing those students performing at a non-passing level that they are at risk of not passing the subject.

4. At the end of each term in the freshman year, letter grades (if assigned) equivalent to the letter grades assigned to upper-class students are provided to freshmen through their freshman advisors. Freshman letter grades may not appear on students’ official internal grade reports or external transcripts and are used in accordance with guidelines established by the Committee on the Undergraduate Program.

5. First-year undergraduates may register for and receive at most 54 credit units in the fall term and 57 credit units in the spring term (excluding ROTC credit units).

Until the 1960s all MIT freshmen essentially took the same subjects, which were assessed using traditional letter grades. Responding to numerous forces for change, the Institute altered both its freshman curriculum in the 1960s and the method of assessing freshmen. The decision to consider abandoning letter grades for freshmen arose for many reasons, but an important one was related to the great changes that overtook education in the United States following the Sputnik launch in 1957. In the aftermath of that crisis, science education in high schools was significantly improved, resulting in a rapid improvement in the abilities of entering MIT students to excel in the Science curriculum. This posed a problem for the assessment of freshmen, since faculty felt compelled to retain some distribution across the entire letter grade range, yet those distinctions turned out to be
Part II: Pass/No Record Grading

It is sometimes supposed that the decision to abandon letter grades for freshmen was directly tied to decisions made at MIT in the late 1960s and early 1970s to expand the number of women and minority students admitted, supposing that these students needed special assistance in the transition to the rigors of MIT. Our review of the timing of policy changes pertaining to the admissions process and the change of the freshman grading policy have convinced us that the two phenomena were not causally linked.

This improvement in the high school preparation of entering MIT students also interacted with general attitudes in society at that time—a time that emphasized freedom of exploration over conformity, and a time in which major institutions such as MIT were attempting to increase the class, racial, and sexual diversity of their student bodies. These developments put pressures on MIT’s freshman year and, in turn, on its grading policies.¹

The pressure on the grading policy was resolved through a reform of the freshman grading system that began on an experimental basis in 1968. In that year the MIT faculty voted that all freshmen entering in September 1968 would be graded on a Pass/Fail basis. That is, the grade of P or F would be recorded for freshmen in all subjects taken by them. The Committee on the Evaluation of Freshman Performance (CEFP), which was established to monitor the experiment, decided initially to impose a credit limit of 51 units, which was quickly raised to 54 units and then abandoned.

The experiment was scheduled to end in 1972, but the faculty voted to continue it for one more year. In 1973 the reform was made permanent, with one important change—the system was changed from Pass/Fail to Pass/No Record, meaning that failing grades were no longer recorded on the external transcript.

In releasing its 1972 report on the Pass/Fail experiment, the CEFP articulated certain hopes and fears associated with the system when it had been adopted in 1968. Responding to those hopes and fears form an important feature of the Subcommittee’s charge. An assessment of the current Pass/No Record system in light of most of these hopes and fears is provided in Appendix II-B.

In 1982 the Committee on Educational Policy (CEP) released its Recommendations on the Freshman Year, which included support of two terms of Pass/No Record grading; improving feedback to freshmen and their advisors in the form of improvements to freshman performance evaluation; retaining the existing load limits (60 and 63 units in Fall and Spring) but urging that the “normal” load carried be 45 to 54 units; improving communications through better information and advising; and establishing the practice of reporting “hidden grades” in the Spring term to advisors.

In 1988 the Committee on the First Year Program, chaired by Professor Kenneth Manning, recommended a more “flexible” first year program and recommended changes in

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Part II: Pass/No Record Grading

Pass/No Record grading to promote those ends. The faculty heard a recommendation that mandatory Pass/No Record grading in the second semester be eliminated; a passing grade be C or higher and no credit be given for any grade lower than C; students be allowed to take one subject per semester after the first semester on this pass/no credit basis; and junior/senior pass-fail option be eliminated.

In 1989 the Manning Committee recommendations were met with heated debate on the floor of the Faculty Meeting. A substitute motion was made to amend the CUP motion, as follows: that the grade of Pass for freshmen in both terms denote C or better performance; the unit limits be changed to 54 in the Fall and 57 in the Spring; and the junior-senior P/F option be changed to Pass/D/F. These changes were put into effect beginning in the Fall of 1990.

In 1995 the twice-a-term written feedback system that had accompanied Pass/No Record grading since its inception was eliminated by a vote of the Faculty. It was substituted “by a process focused solely on freshmen performing at the non-passing level . . . consisting of a written notification to students . . . at the beginning of the sixth week of the term.” This motion was approved, along with a motion to provide first term freshmen and advisors with a copy of their “hidden grades.” The faculty also endorsed the practice of a “Freshman Watch,” that is, quiz checks throughout the term with reports to advisors about freshmen in trouble.

B. Findings

The CUP charge to the Subcommittee posed eight questions to guide its deliberations. Direct answers to those eight questions are found in Appendix II-A.

Most critical to assessing the effectiveness of Pass/No Record grading is understanding how that grading system contributes to, or detracts from, the goals of the freshman year as understood by the MIT faculty. In undertaking that review it is clear that Pass/No Record grading is intended to address directly one of the most important of those goals—providing an effective transition from secondary school to MIT. Part of that transition is common to most adolescents who leave home and go to college. By leaving home and coming to college, freshmen are thrust into a largely new experience in which they must learn quickly how to handle the responsibilities of young adulthood. Yet part of this transition is also unique to MIT itself. Freshmen at the Institute enter into one of the most demanding academic environments in the world. It is also an unusual academic environment among its peers, since for undergraduates it is based on a common core of knowledge in fundamental science that undergirds almost all major programs.

Therefore, in assessing whether Pass/No Record grading provides for an effective transition, we need a clear vision of what that transition should lead to. In addition, we need
Part II: Pass/No Record Grading

a clear vision of the paths that MIT freshmen tread before they arrive at the Institute, so that we can understand whether the rate of transition is too steep or gradual.

MIT freshmen come from a diversity of academic and social backgrounds. Academically, MIT freshmen now come from a wider variety of high school experiences—more private schools and more magnet schools than before, and fewer traditional public schools. At the same time, the rating system used by the Admissions Office to rank applicants has tracked a significant increase in the academic quality of the admitted pool over the past decade. Hence, variance in the level of overall academic preparation for the rigors of MIT is less than it was ten or twenty years ago. At the same time, social diversity—most easily marked by the racial, ethnic, and sexual composition of the undergraduate population—has grown markedly over the past generation, as have the career and academic aspirations of incoming students. Therefore, a transition time from high school to MIT is still very much needed, even though the precise contours of that need have changed.

The heterogeneity of high school preparation is a factor that both students and faculty must contend with, even when the vast majority of admitted students arrive ready to “hit the ground running.” Longstanding evidence at the Institute suggests that, with very few exceptions, students who are admitted to MIT with deficiencies in their backgrounds quickly catch up and are as successful as those who come from privileged backgrounds. Providing a relatively low-pressured environment in which such catching up can proceed—in a way that does not stigmatize students needing a little extra preparation—is unquestionably valuable.

Central to achieving the goal of providing an effective transition from high school to MIT is the desire to reduce the anxiety and pressure many freshmen feel when they first arrive on campus. Relief of anxiety and pressure associated with the first year at MIT is a goal that is served well by the Pass/No Record system. This is the most frequently-mentioned reason why undergraduates support the current system, and is a supporting reason mentioned by many faculty and administrators, too. Not only is this relief of anxiety and pressure appreciated in its own right, but it is widely recognized that first year students take advantage of the lessened academic pressure to explore a wide variety of extracurricular activities.

Faculty are virtually unanimous in agreeing that this effect is good and succeeds in the Fall. Many faculty express regret in the culture of gamesmanship that infects the system as it plays out in the Spring. This gamesmanship compromises the level of academic focus in that term, ultimately degrading the overall educational experience of many freshmen.

One issue that has been underappreciated in the concern over transition from high school to MIT is the next transition step, from freshman year to sophomore year. Because of the way Pass/No Record is structured, sophomores face two daunting transitions—to
grades and into departments. What is referred to as the “sophomore wall” undoubtedly comes from the confluence of these two pressures. This transition is one that many faculty and administrators have struggled for many year to understand, with limited success. The Subcommittee reached no major breakthroughs on this subject. However, the Subcommittee encountered many faculty who voiced concerns that the lower level of pressure associated with the freshman year encouraged complacency among some students that then interfered with their academic performance in the sophomore year.

This concern over the transition into the sophomore year introduces the primary academic goal of the freshman year—providing a foundational knowledge in science for subsequent work at MIT—and the performance of the Pass/No Record grading system in light of that goal. A comprehensive review of the grading system suggests that Pass/No Record grading helps to fulfill this goal in many ways. When students speak of the uncertainties they face when first coming to MIT, and of the value of Pass/No Record grading in helping them overcome those uncertainties, they are testifying to the academic assistance that the grading system lends in helping students learn by removing the distractions of self-doubt.

There is also broad evidence that the current grading system eventually undermines a mastery of fundamental material. In one sense it must do that, at least a little. Yet a small sacrifice in academic mastery may be a price worth paying if it leads in the long run to a better-prepared and more confident student. Still, the less the Pass/No Record system functions as an innocent safe haven for student adjustment and the more it functions as a system that actively encourages inattention to studies, the more it becomes an active tool for deflecting away material that must be mastered before going on to the sophomore year. And when that happens, the short term costs of the grading system do not exceed its long term benefits.

Concern over the negative incentive effects on the mastery of fundamental material is frequently voiced by instructors who teach Science Requirement subjects and by those who teach the principal “portal subjects” in the majors. Many Science Requirement subject instructors testify to subtle games played by students to “get by” on less than full effort. These strategies seem to proliferate in the Spring Term especially. Many instructors in introductory major subjects lament that they must spend too much time reviewing material that should have been mastered in the freshman year.

In searching for more systematic evidence that freshmen are devoting less attention to their studies than they should, the Subcommittee examined a significant volume of data concerning grade distributions and the allocation of time by students to their subjects. (A more comprehensive view of some of these data is provided in the discussion in Appendix II-A, Answer 2 on page 27.) None of this data is perfect, but viewed in its entirety, it provides a useful and consistent view of the freshman year. Freshmen devote themselves to a number of academic and extracurricular pursuits at a level no less than upperclassmen,
often exceeding upperclassmen. Freshmen devote considerable time to their studies, but
the average amount of time spent on Science Requirement subjects is significantly less than
time devoted to other subjects. The end result is that the average GPA of freshmen is lower
for freshmen than for upperclassmen—3.8 vs. 4.1 in recent years.

Therefore, the Subcommittee’s view of the effects of Pass/No Record grading is one of
concern, not alarm. Nonetheless, one does not need to be alarmed at the current state of
the freshman Pass/No Record system to believe it must be changed. Instead, because the
negative effects of the current Pass/No Record system are often diffuse, it is necessary to
craft careful reforms that are proportionate to the problems at hand.

The Pass/No Record system should be continued, and strengthened in the Fall Term.
However, a more effective transition from Orientation Week to sophomore year is needed,
as is more encouragement for freshmen to develop academic momentum in their Spring
Term. Therefore, the Subcommittee also recommends that freshmen be graded on a
modified letter grade basis in the Spring—A/B/C/No Record. This system would be
intermediate between the Pass/No Record system of the Fall Term and the regular letter
grade system that begins in the sophomore year.

Finally, the Subcommittee also recommends three more changes to current policy
intended to assist the transition into the MIT academic environment and to enhance
academic performance—an enhancement to the current Fifth Week Flag system, the creation
of the designation of “Exploratory Subjects,” and a clarification of the role of prerequisites.

The current Fifth Week Flag system of identifying freshmen who are in danger of failing
individual subjects should be enhanced. The original Pass/Fail system replaced letter
grades for freshmen with a system of narrative evaluations of all freshmen by instructors.
This system brought mixed reviews, and was abandoned in 1995.

On the positive side, faculty and students recognized that the narratives, when done,
provided a much greater depth of evaluation than was possible with letter grades. Also, the
system involved evaluations given twice each semester, at mid-term and at the end. The
mid-term evaluations were especially useful in nudging students back on track or in
encouraging students who underappreciated their own efforts. The narrative provided a
useful moment of self-evaluation for freshmen, who were required to initiate the process
with a narrative evaluation of their own performance in each subject. Advisors found the
system useful because of the richness of the feedback.

On the negative side, faculty found the system imposed an onerous administrative
burden, especially on faculty teaching large lecture subjects. Many students neglected their
duties to the system, too. Therefore, not all the forms were filled out, and the system left
many gaps.
Replacing this system in 1995 was the current Fifth Week Flag, which identifies students who are in danger of failing and communicates this fact to them and their advisors. This has proven to be an efficient and effective system, but it is limited. At the time the Fifth Week Flag was written into the Rules and Regulations of the Faculty, the Faculty also endorsed the idea of a Freshman Watch, which was intended to provide information to advisors about the ongoing performance of their freshmen during the term. Unfortunately, the Freshman Watch idea was never implemented. The failure to communicate with students who are doing better than failing but who could easily fall into that category and the failure to provide regular information throughout the term to advisors are limitations of the current system.

The second additional recommendation is the establishment of an “Exploratory Subject” designation that may be used by sophomores. To help facilitate the transition into majors or the exploration of entirely new subject areas, sophomores should be allowed to designate one subject during the sophomore year as an Exploratory Subject. An Exploratory Subject would have to be so designated by Add Date. At the end of the term, the sophomore would then have two choices. He or she could accept the grade received in the subject, or he or she could convert the subject to “Listener” status.

This recommendation is intended to respond to a common concern the Subcommittee heard voiced—that students need some flexibility within the grading system to allow them to explore new areas. The freshman year Pass/No Record grading system (and the proposed A/B/C/NR system) allow for this in the freshman year, and the P/D/F option for juniors and seniors allows it in these two years. Yet there is no exploratory grading option in the sophomore year. This is a serious shortcoming of the current grading system, since sophomore year is when most undergraduates begin exploring majors, often declaring majors in departments in which they have never taken classes. In addition, many sophomores adopt an overly cautious strategy in selecting their subjects, wanting to avoid novel and unusual subjects while they are adjusting to grades. Therefore, it seems reasonable to create a small amount of “pass/fail insurance protection” for sophomores, to allow the completion of the transition to MIT that begins in the freshman year.

However, simply extending the junior-senior P/D/F option back one year or the freshman A/B/C/NR system forward one year seem to be inappropriate strategies for achieving the desired result, which is exploration across a wide swath of the curriculum. Because the junior-senior P/D/F option may not be applied to subjects required for the major or to GIRs, the amount of exploration it might foster is restricted to a very narrow range. Because so few MIT students actually fail their subjects, the A/B/C/NR option would seem functionally no different than regular letter grades.

The Exploratory Subject idea is attractive because it provides a way for students to explore in any area of the Institute they are interested in, including majors, while simultaneously allowing them to remove from the transcript a letter grade that the student finds unsatisfactory, for whatever reason. Exercising the “Listener Option” of this proposal
Part II: Pass/No Record Grading

has significant consequences for students, however, and therefore would not be exercised lightly. Most importantly, if the Exploratory Subject were required for a major, it would be necessary to take that subject again for a letter grade before the requirement could be fulfilled. The same would of course apply to subjects needed to fulfill one of the GIRs. Therefore, the principle of fundamental mastery of foundational material could be maintained.

The final additional recommendation is that the function of prerequisites be clarified. Many faculty have voiced concerns that the Pass/No Record system encourages undergraduates to take difficult subjects in the freshman year, before they have taken the prerequisites for those subjects. In reviewing the evidence about this problem (See Appendix II-A, Answer 7, on page 33), the Subcommittee concluded that the lack-of-prerequisite problem is not a general one of the freshman year, although it does create significant localized problems.

An example of such a localized problem occurred in Spring 2000, when 64% of the freshmen who enrolled in 6.002 did not have the prerequisites listed for the subject (18.03 or 18.06 plus 8.02). Reports from the instructor in 6.002 indicate that these freshmen had significantly greater difficulty than those who had already completed the prerequisites. It may be necessary to restructure, and in effect “dumb down,” 6.002 in the future if this trend continues, so that it will not be a demoralizing experience for both instructors and students.

The Subcommittee is aware that many faculty are uncertain about what they are allowed to do when a student attempts to take a subject without having taken the published prerequisite. Therefore, it is important to state clearly that faculty members are within their rights to exclude from their subjects students who have not fulfilled the published prerequisites. The Registrar’s Office has operated a pilot program with the Physics Department over the past year to identify students who enroll in certain Physics subjects without the appropriate prerequisites. These students are then removed from the class list. This sort of administrative mechanism should be extended to all faculty members who desire such assistance. However, it also appears that the Registrar’s Office will need increased resources if it is to extend this capability to more subjects.

C. Proposal to Change Freshman Grading System

The subcommittee recommends the following features for a new freshman grading system. The recommendation is made following a review of various alternative proposals, which are listed in Appendix II-C, on page 50.

1. In their first term at MIT, all freshman students are graded on a Pass/No External Record basis. The grades of D and F are non-passing grades. An internal record of all
Part II: Pass/No Record Grading

hidden grades is maintained by the Registrar; copies of this record are provided to each student and advisor at the end of term.

This continues the current Pass/No Record system in the Fall Term of the freshman year. The nomenclature is slightly different, to emphasize that there is no external record of letter grades, although internal records are kept and made available for appropriate internal purposes. This is a nomenclature change, not a change in actual current practice.

Some faculty members have proposed abolishing the Pass/No Record system in the Fall Term of the freshman year. The Subcommittee urges strongly against this proposal. It would subject entering students to unnecessary stress and discourage many from exploring the rich offerings of MIT outside the classroom. There is certainly a cost that is paid by some freshmen not applying themselves fully in the Fall Term. That cost is compensated for by the reduced academic pressure, which improves the performance of some students, and the latitude given students to explore in that first term.

2. freshmen continue to be graded on a Pass/No External Record basis during the January IAP.

Again, this continues the current policy, making it clear that IAP is included, for two reasons. First, several versions of Science Requirement subjects now begin in the fall, and finish (and therefore are graded) during IAP. For subjects that begin in IAP and are completed in the second term, second term provisions (see below) apply. Second, IAP is an especially appropriate time for explorations at MIT, and therefore allowing freshmen to remain on

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2The following points summarize the policy governing the use of internal freshman grades, as approved by the Committee on Educational Policy in 1985:

1. First-year internal grades may not be used in ways which would prevent students from enrolling in the department of their choice.

2. MIT will not send copies of the internal grades to third parties. It is not consistent with the purpose of internal grades for faculty or staff members to release them except to the student, or to take initiatives such as suggesting that students provide first-year grades to third parties.

3. No MIT office or individual should provide information directly to a graduate school, company, or any other third party concerning assigned internal grades—by phone, in writing, or by transmitting the unofficial report of the student's internal grades. If the student requests it, a letter, addressed to the student, will be prepared by the department which gave the subject, that will inform him or her of the assigned internal grade that is in the file. (The one exception to the above is that students applying to medical school may request that their letters be sent to the Preprofessional Advising Office for forwarding to medical schools they designate.) It is hoped that students’ use of internal grades for other than intended purposes can be reduced to the lowest level possible.

4. Internal grades can be used within MIT for advising functions, that is, helping students make academic choices. It is inappropriate to use internal grades for “evaluating” students, that is, making comparisons leading to choices among students, such as selections for student employment or UROP.

The Subcommittee endorses the spirit of these policy guidelines and notes that they will need to be updated in light of the proposed new freshman grading policy.
Pass/No Record during January seems like an appropriate inducement to encourage them to take advantage of it.

3. In the second term of the freshman year, all first year students are graded on the basis of A/B/C/No External Record. That is, the passing grades of A, B, and C are recorded on the student’s permanent record, but the non-passing grades of D and F are not. Passing grades assigned in the second term will be used in calculating a student’s cumulative grade point average.

The Subcommittee recommends that MIT adopt a modified version of letter grading in the Spring. The principal modification is that letter grades of D and F are not recorded on the external transcript, although they are recorded on internal grade reports.

The principal reason for recommending a change that moves Spring Term grading in the direction of letter grades is a belief among the Subcommittee, supported by feedback from faculty members who teach a large freshmen subjects, that the lack of letter grades encourages poor academic practices among a significant number of freshmen. The principal reason why the Subcommittee did not recommend moving to a pure letter grade system in the Spring is that the Subcommittee wanted to retain certain “disaster insurance” features of the current grading system into the second term, while at the same time creating a smoother transition to the second year grading system.

One concern about the Subcommittee’s proposal is that it may induce some inappropriate gaming among students who are performing at a C, or even a B, level. There may be temptations to “punt” final exams or other end-of-term exercises, in the hope of receiving no record on the external transcript, rather than a C. However, other features of this proposal should help guard against widespread behavior of this sort. In particular, students who fail a Spring Term subject would, in most cases, end up taking that subject again on an even purer form of the grading system. Furthermore, because most of the subjects taken in the freshman year are needed for graduation or for expeditious progress in a major, the Subcommittee suspects that most students would rather receive a low passing grade in the Spring Term of the freshman year rather than significantly delay their graduation from MIT.

Because some students may discover creative and unanticipated ways to manipulate Spring Term grading under this proposal, the freshman grading system should be reviewed again after four years of operation, in AY 2006-2007.

The Subcommittee had originally considered omitting freshman letter grades from the calculation of grade point averages, since the grades reported externally are truncated at C. However, upon further reflection the Subcommittee decided to make the current recommendation, for simplicity’s sake. First, the appearance of letter grades on transcripts
Part II: Pass/No Record Grading

without them being factored into GPAs will be confusing to many outside MIT who read our transcripts. There would obviously be an explanation of this practice in the fine print of the official transcript, but we suspect the fine print would not often be read. Second, the Subcommittee is aware of a common practice in which graduate admissions committees recalculate GPAs based on all letter grades showing on a transcript. Therefore, others are likely to use freshman letter grades for the computation of GPAs even if the MIT Registrar does not.

This proposal will cause GPAs to be biased upwards somewhat, owing to the fact that freshman D’s and F’s will not be factored in. However, the bias will be small and diminish across the time a student is at MIT.

4. The term unit limits will continue to be 54 in the Fall Term and 57 in the Spring.

The Subcommittee considered both reducing the credit limit (in both terms) and eliminating it in the Spring. In the end, the Subcommittee feels that it is important to leave the credit limits unchanged for both terms, for three reasons.

First, the credit limit is an important institutional feature that the MIT faculty use to encourage freshmen to explore extracurricular activities. Even if MIT freshmen are subjected to letter grades in the Spring, they will still need to explore options outside the classroom. Second, exposing freshmen to grades but keeping the credit limit in place seems an appropriate strategy as students learn to make appropriate academic choices.

Third, in the spirit of experimentation, it is important to make only one major change to the freshman grading system at a time. The more important change to make at the moment is to introduce letter grades in the Spring. If, after a few years of experience with letter grades, the faculty wants to revisit the issue of the credit limit, they can do so. Furthermore, MIT faculty and administrators will need to monitor the effects of the grading reform over the next several years. It would be unfortunate if estimates of the effects of moving to letter grades were confounded with the effects of changing the credit limit.

5. The Dean’s Office should work with departments to develop additional methods to communicate in-term academic performance to students and advisors, to augment the current Fifth-Week Flag system.

The Fifth Week Flag system was implemented following the vote of the Faculty in 1995 to abolish the narrative freshman assessment system then in place. This substitute performance evaluation process focuses solely on students performing at the non-passing level relatively early in the term. At the time the Faculty approved the flag regulation, they also endorsed a Freshman Watch process as a complement to the Fifth Week Flag, wherein
the freshman advising office would provide frequently-updated information to advisors about the performance of their freshman advisees in quizzes throughout the term. However, the Freshman Watch system was abandoned shortly after the Faculty vote because of the difficulty in obtaining information from the various academic departments. As an unfortunate result, the amount of information provided to advisors about their advisees’ performance throughout the term was severely diminished.

The Freshman Watch idea remains a valid and necessary concept in a Pass/No Record grading environment. The Dean’s Office should work to improve upon the information that is made available to advisors about their advisees’ performance during the semester by taking advantage of the numerous electronic tools that might be employed (and thus avoiding the burdensome task of collecting performance data manually). For example, an “electronic grade book” might be developed for the MIT environment so that quiz grades, and even brief narrative comments, might be easily shared with advisors.

Because of its broad responsibility for administering the first year experience, it is appropriate for the Dean’s Office centrally to take the leadership role in developing these new strategies and by working with departments to find ways to share this information quickly and easily. The importance of enhancing the information that is available to advisors about their advisees’ performance is great enough that this is one area where the Dean for Undergraduate Education might profitably invest new resources.

6. Undergraduates will be allowed to designate one “Exploratory Subject” in the sophomore year. Exploratory subjects may be designated either term, but must be designated before Add Date. At the end of the term in which an Exploratory Subject has been taken, the student will then have the choice of accepting the grade received, along with the credit, or re-designating the subject so that “Listener” status is indicated, in which case the grade and the credit are forfeited.

The general tenor of the preceding recommendations in this part of the report is to increase the academic demands on a significant fraction of freshmen in the Spring Term. Yet it would not be within the spirit of the Subcommittee’s deliberations only to reduce student flexibility in their early years at MIT. Rather, the spirit of these deliberations was searching out ways to providing a more gradual transition into the rigors of the Institute. Having raised the demands in the freshman year, it is wise to introduce additional flexibility in the sophomore year.

Therefore, the Subcommittee recommends creating the designation of the Exploratory Subject in the sophomore year. The Subcommittee originally considered other grading mechanisms to achieve the goals of this recommendation. These included extending the junior-senior P/D/F option back into the sophomore year, extending the second-term freshman year A/B/C/NR system forward into the sophomore year, and modifying the junior-
senior P/D/F option so that it could be applied to any subject (including those required for majors) in the sophomore year.

The current proposal seems superior to all of those when juxtaposed against the goals and principles identified at the outset. It supplies a small but significant inducement to explore while not undermining the need to ensure a high level of competence in fundamental subjects that form the basis of later academic work.

Even with the positive benefits that would follow from this proposal, the Subcommittee can imagine some negative consequences that might follow. Among these are (1) the possibility that the process of changing the designation of subjects at the end of the term to Listener status may prove administratively complicated and (2) the possibility that the Exploratory Subject designation may encourage sophomores to overload. Trends associated with the usage of the Exploratory Subject designation should be monitored closely after its implementation, to gauge the degree to which negative consequences such as these are encountered.

7. Once the Committee on Curricula (COC) has approved a set of prerequisites for a subject, the faculty teaching that subject have the right to exclude students from taking the subject who do not satisfy the prerequisites. The Registrar's Office will work with faculty members to create a system that readily identifies students who do not have the prerequisites in advance of the student's first day in that class and which prevent that students' registration in that class.

One of the most persistent and vexing problems we heard from faculty was the tendency of some freshmen to take advanced subjects, without the appropriate prerequisite subjects. This is a frustrating problem because there appears to be an obvious, localized solution to it: create mechanisms that allow faculty members and departments to enforce the prerequisites as published in the Bulletin. Indeed, some faculty and departments (notably Physics) have actively enforced published prerequisites and have worked with the Dean's Office to automate that practice. Still, some faculty members express confusion over whether they are allowed to exclude students who have not taken the prerequisites listed for their subjects. Indeed, there are a variety of opinions among the faculty about whether prerequisite subjects should be enforced or whether they are merely guidelines.

Having in class a large number of students taking a subject who have not taken the prerequisites can be seriously disruptive to the goals of that subject and to the learning experience of those students who have the proper background. Therefore, faculty must be able to enforce prerequisites.

At the same time, MIT has a long tradition of encouraging students to challenge themselves academically, which sometimes means taking subjects that are a little “too
advanced.” It may be appropriate, in a limited number of cases, for students without prerequisites to take a subject nonetheless. There are already allowances for such students. First, individual faculty members should be flexible enough in granting exceptions to this rule when they are convinced that a student can handle the material in the class. Second, the COC approves the proposed prerequisites, and can use that authority to ensure that faculty members and departments are not introducing arbitrary restrictions. (In a similar vein, the COC can use its authority to ensure that instructors do not go beyond the prerequisites in keeping students out of their subjects arbitrarily.) In the end, however, it is the responsibility of faculty members teaching subjects to judge whether a student who has not taken a prerequisite is prepared to take the subject. And it is appropriate for the instructor in charge of a subject to have the authority to restrict enrollment in that subject, up to and including denying a student permission to register for the subject.

8. Transfer students will, at most, be allowed one term of grading under the A/B/C/NR system upon their initial enrollment at MIT. Transfer students will not be offered the option of Pass/No Record grading.

Transfer students, who in Fall 1999 numbered 25, are an important special case to discuss as MIT changes its grading system for freshmen. Typically the Dean’s Office offers to about one-third of transfer students the option to take the first semester’s subjects Pass/No Record, occasionally even assigning “freshman status” to a transfer student whose case is exceptional.

Transfer students have already experienced the most significant transitions from home to college before they arrive at MIT; therefore, only in rare cases should MIT transfer students have reason to need the benefits of MIT’s Pass/No Record system. Under the proposed new grading system, transfer students should, for special reasons only, be allowed to take subjects under the A/B/C/No Record system (normally reserved for second semester freshmen), and never under the Pass/No Record system. Staff in the Dean’s Office who are determining whether a transfer student should be under A/B/C/No Record grading or traditional letter grades should base this decision on the entirety of the student’s prior college experience, and not on the amount of college-level experience in science.
Appendix II-A
Response to Questions in the Charge Pertaining to Pass/No Record Grading

1. Are the purposes as outlined in 1972 still relevant and consistent with the goals of the MIT first year experience?

This question makes reference to the 1972 report of the Committee on the Evaluation of Freshman Performance and the goals propounded for Pass/Fail grading that are listed in the charge to the committee (see Appendix I-A). On the whole, the short answer to this question is, “yes.” Not only are the goals as a whole valid on the face of it, they are easy to reconcile with the recent re-articulation of the goals of the first year experience as recently propounded by the CUP. Those goals constitute the first four principles we reviewed in Part I, Section C of this report. The primary deficiency of these goals is that they are not comprehensive enough.

The first and third goals articulated by the CEFP in 1972—to relieve freshman year pressure and to compensate for differences in secondary school preparation—map directly onto the second principle we articulated in Part I, Section C—to provide an effective transition to the MIT environment.

However, the original goals in 1972 did not address directly the other three top educational principles recently outlined by the CUP and adopted by the Subcommittee, namely ensuring that students acquire a foundational knowledge of science and the humanities, exercise their intellectual abilities, and develop social skills and acumen. We suspect that the faculty in 1972 simply assumed that students would be naturally driven academically, and therefore academic goals did not need to be addressed directly in a discussion of the grading system. Therefore, if we were to re-articulate the goals of the freshman grading system we would include the mastery of foundational knowledge and the exercise of intellectual abilities—goals that are consistent with an effective transition to MIT, but not identical to it.

In addition, the 1972 goals that speak to transition and compensating for differences in preparation do not directly address the fourth of the CUP’s educational principles which we also embraced, namely the development of social skills and acumen. Given the significant academic pressures at MIT, the faculty need to state clearly that it values the exploration of areas outside the formal curriculum; the freshman grading system should be structured both to encourage that exploration and to help students balance curricular and extracurricular demands. Stated another way, one of the goals of the current Pass/No
Part II: Pass/No Record Grading

Record grading system should be to encourage first year students to explore the world outside the classroom and to integrate that exploration into their total education.

On the whole, then, the Subcommittee found that the 1972 goals were a useful starting point in evaluating of the current Pass/No Record grading system—so much so that in the Appendix II-B (page 43) we review most of those goals serially. We also found one of the minor goals so vague as to be useless for evaluating the system. Finally, we found that we need to articulate two new goals. Therefore, the Subcommittee suggests the following seven goals as providing the basis for evaluating the current Pass/No Record system and proposing any new changes to that system:

1. Relieve the anxiety and sense of pressure felt by incoming MIT students during the year of their transition from secondary school to work in a university of high quality and high expectation.

2. Encourage the acquisition of foundational knowledge of science, the humanities, arts, and social sciences and encourage the exercise of the intellectual abilities of our students. (new goal)

3. Encourage the development of social skills and acumen for MIT and beyond. (new goal)

4. Develop in each student a more mature motivation for his or her university education and a more active, expressive involvement in his or her studies; and to give the student a sense of freedom to make a wider choice of subjects and a wider choice in the allocation of time among subjects when a topic within any one of them strikes that student as especially exciting.

5. Give incoming students a year in which to compensate for differences in their secondary school preparation.

6. Enrich the evaluation of student performance and experience in each subject.

7. Change the image of MIT as a school that grinds out students mechanically, a school that only “tools” would find congenial.

2. What are the statistical trends with respect to subject enrollments, grade distributions, average loads at the start and end of term, etc.?

Although the formal description of the MIT curriculum would suggest that freshmen all undertake an identical course of study, that stereotype is far from the truth. Mostly because of their performance on advanced placement examinations, the “average” entering freshman
has at least one of the Science Requirement subjects out of the way (usually 18.01), and often two (18.01 plus one of the sciences). In addition, because many students put off 7.01 until the sophomore year, the typical entering freshman has two or three “free slots” out of the eight or nine subjects typically taken by freshmen.

(To aid in this discussion, Table II-A-1 of this Appendix reports a summary of all freshman enrollments and Table II-A-2 reports the subjects with more than 50 freshman enrollments in AY1999–2000.)

What do these students do with their “free slots?” In the first term, the overwhelming majority of freshmen take the “next” subject in the science curriculum. For instance, in Fall 1999, 594 freshmen took Calculus II; 82 took Physics II. In addition, 109 took 5.12 (Organic Chemistry) and 82 took 6.001 (Structure and Interpretation of Computer Programs). Although there is some controversy about the number of freshmen enrolling in 6.001, on the whole freshmen who take it in the Fall tend to receive higher grades than upperclass students. Because we later report that freshmen on the whole receive lower letter grades than upperclassmen, these grades indicate that Fall Term freshmen enrollments in 6.001 are a bright spot in the first year, in the following sense: A great number of these freshmen are very devoted to the material taught in 6.001, and therefore devote the extra time and attention necessary to master the subject.

In the Spring, the academic choices of freshmen are even more varied. Many of the students who got a jump start on the Science Requirement due to advanced placement credit continue acquiring foundational knowledge for their later academic careers. In Spring 2000 612 took 18.03, 164 took 5.60 (Thermodynamics and Kinetics), 231 took 6.001, and 138 took 6.002. Again, there is some controversy about freshman enrollments in 6.001. Unlike freshmen who enroll in the Fall, freshmen who enroll in the Spring perform significantly worse on average, measured by letter grades.

More troubling are reports that in the Spring many freshmen decide to “game” the grading system, taking subjects for which they are unprepared, either due to a general lack of intellectual maturity or the lack of prerequisites. The subjects that are most frequently mentioned in this regard are 6.002 and 5.60. In Spring 2000, for instance, 64% of the freshmen who enrolled in 6.002 did not have the prerequisites listed for the subject (18.03 or 18.06 plus 8.02). Reports from the instructor in 6.002 indicate that these freshmen had significantly greater difficulty than those who had already completed the prerequisites.

It is possible to analyze differences in grade distributions in all subjects because the Registrar’s Office has kept “hidden grades” of freshmen since the early 1990s, integrating them into the MITSIS system for the past five years. In addition, various departments have kept records of the hidden grades of freshmen going back many years, and the Office of Academic Services has distributed information about hidden grades to the departments for nearly twenty years.
Part II: Pass/No Record Grading

Table II-A-3 reports the average GPAs of MIT students over the AY1995–96 to AY1999–2000 period, broken down by year at MIT. The GPA of freshmen is one-third of a grade point lower than upperclassmen. We also analyzed GPA differences within HASS-D subjects, since HASS-Ds are the only part of the GIRs that are regularly taken by large numbers of upperclassmen. Here we see the same comparative pattern—freshmen perform at a GPA level of approximately one-third of a point lower than upperclassmen.

A more nuanced view of GPA differences is supplied in Figure II-A-1, which shows the actual distributions of grades across the four years in AY1999–2000. The biggest difference in the distributions is the downward shift in grades among freshmen compared to upperclassmen. That is, almost half (49%) of grades assigned to upperclassmen are A’s, compared to 22% for freshmen.

Freshmen received fewer A’s than upperclassmen and many more C’s. In addition, the fraction of hidden grades awarded to freshmen that were A’s and B’s dropped in the Spring, compared to the Fall, while the fraction of C’s rose. This is a pattern that held for no other undergraduate class, where the intra-semester drift in grades moved toward A’s, if it moved at all. At the same time, the number of failing grades assigned to freshmen was only somewhat higher than those assigned to upperclassmen. In AY1999–2000, 2.7% of freshmen grades were F’s, compared to 1.4% for upperclassmen; 3.4% of freshmen grades were D’s, compared to 2.2% for upperclassmen.

Considered together, these grade patterns suggest a pervasive problem with freshman academic performance, characterized by a large number of freshmen “getting by” under Pass/No Record.

Another perspective on the amount of effort that students apply to subjects is provided by responses to the Subject Evaluation Guide (SEG), which asks students to estimate how much time they spend each week, on average, on various aspects of the subject. Table II-A-4 describes the amount of time that undergraduates reported they spent on various categories of 12-unit subjects in calendar year 1999 (Spring 1999 and Fall 1999). Unfortunately, the SEG does not ask students to indicate their class/year at MIT, and therefore we cannot compare freshmen and upperclassmen directly. However, the Science Requirement subjects are disproportionately populated with freshmen, and so we can gain at least some insight into freshman/upperclass differences.

Among the different categories of subjects in Table II-A-4, students report spending the least time per week on Science Requirement subjects. Furthermore, there is a significant drop-off in time spent during the Spring, compared to the Fall.

As with GPAs, the actual distribution of hours spent each week in different types of subjects is also telling. Figure II-A-2 displays these distributions, by subject type, for Spring 1999. What is telling about the distributions is this: of all the subject types, the only one
Part II: Pass/No Record Grading

without a “right skew” to the distribution is Science Requirement subjects. This is consistent with a significant number of students putting in a “sufficient” amount of effort each week to get by in the Science Requirement subjects, with very few working beyond what is required in the subject.

The final statistical trend we were asked to report on concerned subject unit loads. Compilations by the Dean’s office over the years have indicated two general trends. First, freshmen have tended to enroll for the maximum of units allowed, and have enrolled for a slightly greater average number of units than upperclassmen. Second, the variance in enrollments have been much lower for freshmen than upperclassmen.

Table II-A-5 indicates that this general trend was borne out in AY1999–2000. Table II-A-5 is divided into two parts. The upper part describes the average number of units in which MIT freshmen enrolled in AY1999–2000, by semester and year. By a small margin, first-term freshmen register for the most units of any class group at MIT, because of the large number of students who either take a freshman advising seminar or 6.001. In the second term the average units drops off a bit, although the “average” freshman is taking three 12-unit subjects and one 15-unit subject.

The standard deviations reported in the upper half of Table II-A-5 are also consistent with past trends of freshmen varying less than upperclassmen in the number of units taken. Further insight into this lack of variance can be gleaned from the bottom half of Table II-A-5, which reports the distribution of students according to the number of units they have registered for. In both terms, the low variance in freshman unit load is due primarily to the small number of freshmen who register for less than a full load of classes—interpreted in this case as being fewer than 45 units.

That roughly one-sixth of sophomores register for fewer than 45 units a semester suggests that coming under grades leads a small portion of students to scale back their academic ambitions to meet the new level of pressure. While we cannot know for sure, this also suggests that a small fraction of freshmen are taking more classes than they “should,” under the shield of Pass/No Record grading. In other words, the Subcommittee suspects that under its recommendation, a similar number of freshmen would take 45 or fewer units in the Spring Term.

3. What are some alternative proposals for first year grading schemes that might be considered?

The Subcommittee considered approximately twelve (depending on how they are classified) alternative grading proposals. A full listing is contained in Appendix II-C (page 50). A few were generated by the Subcommittee itself, but most were generated by faculty members and students who met with us.
4. Should P/NR grading be limited to the Fall Term only? Are there categories of subjects that should be graded on a P/NR basis regardless of when a student takes them?

Pass/No Record grading should be limited to the Fall Term. Fall is when the greatest benefits are had with respect to the transition of freshman from secondary school to MIT. In the Spring Term a significant number of students have either made this transition successfully or have learned how to take inappropriate advantage of the Pass/No Record system. In exceptional cases there may be freshmen who encounter first-term difficulties that are so unusual that it might be appropriate to “wipe the slate clean” from the first term. However, the Committee on Academic Performance (CAP) already has flexible authority to address exceptional cases, and nothing in the Subcommittee’s recommendation would change that.

Identifying certain subjects to be graded on a Pass/No Record basis regardless of when they are taken is unsound, for at least two reasons. First, it violates the principle of not creating first- and second-class subjects. Second, it violates the principle of using the grading system to encourage mastery of fundamental material, since the subjects that are usually proposed to fall within this category, mainly Science Requirement subjects, are required for almost all majors.

5. Should there be options available to instructors or departments to limit enrollments in subjects for students not taking subjects on grades?

This alternative is related to one the Subcommittee heard, which was to allow departments or instructors to require that all students, including freshmen, taking designated subjects take them on letter grades. A letter from Course VI outlining an alternative similar to this was received by the COC and CUP and forwarded to the Subcommittee. We will address both alternatives here.

It would be unwise to allow departments to require freshmen taking specially-designated subjects to take them on grades, even though their other subjects might be taken under Pass/No Record. Such a system would easily create a two-tiered set of subjects for freshmen—subjects that needed a lot of attention because they were being graded and those that could be put off. Freshmen should be encouraged to master all the subjects they take in the first year and therefore should not be tempted to master some and not others. A Pass/No Record system should apply to all freshmen or no freshmen.

At the same time, there are virtues in a system that might restrict subjects to students taking all their subjects on letter grades. The special virtue is that it does not create first-
and second-class subjects—a student to whom this system would apply would not be tempted to master some subjects and neglect others because of the grading system.

Especially if the current Pass/No Record system is unchanged, then allowing this option to departments would force the issue of accelerated freshmen being offered “sophomore standing” in the Spring Term. Presently about one-quarter of the freshman class has enough units by the Spring Term to be considered sophomores. These students are offered sophomore standing, but only about 10% accept it—presumably because it would require them to forego the benefit of the Pass/No Record system. (The advantages of sophomore standing are that the credit limit is lifted and a student is allowed to choose a major and therefore enter a department.) A fuller discussion of sophomore standing is contained in the discussion of Advanced Placement policy in Part III.

At the end of the day, however, the recommendations of the Subcommittee would make the consideration of these sorts of policies moot.

6. The load limit is currently 54 units in the Fall Term and 57 units in the Spring Term. The Fall Term load limit has had an effect on enrollments in Freshman Advising Seminars. Should there be an adjustment or special exceptions made to these limits?

This question pertains most directly to freshmen who wish to take 6.001, which would put them at the credit limit, assuming it was paired with three 12-unit subjects.

There should be no exception to the credit limit for Freshman Advising Seminars (FAS). First, alternative, high-quality advising venues are available for such students. Dropping an FAS does not end the advising relationship between the freshman and his or her advisor, it just ends the requirement that the student complete the academic portion of the seminar for credit. Taking subjects as “listeners” is also a valuable habit, and one that could be encouraged among freshmen facing a conflict over the FAS or 6.001. Second, and more important, the credit limit was established, at least partially, to encourage students to sample the extracurricular opportunities at MIT. The Subcommittee is uncomfortable crowding even further into the extracurricular time of first-term freshmen, who are already taking more units than upperclassmen. Learning to make choices among the many opportunities at MIT is an important part of the transition here.

Finally, there is still one option available to students who wish to take 6.001 and an FAS for credit: two twelve-unit subjects, 6.001, and the FAS, for a total of 45 units. Because virtually all MIT undergraduates graduate with excess units and the vast majority enroll with advanced placement units in Science Requirement subjects, taking this route would not slow the progress of many students toward their degree.
7. What are the incidences and consequences of the “gaming strategies” used by students to maximize P/NR grading?

The type of inappropriate gaming that Pass/No Record grading may induce can be divided into three types. The first might be a tendency to “coast” in a subject once a student knows she or he has done sufficiently well to guarantee at least a C for the term.

The incidence of this sort of behavior is difficult to gauge, although it does occur to some extent. Faculty who teach Science Requirement subjects receive questions from freshmen each term, asking how well they need to do for the remainder of the term in order to pass. The number of these students is small, but it is likely the tip of the iceberg. Similarly, the grade distributions reviewed above suggest a widespread easing off of effort among freshmen in their subjects.

The second type of inappropriate gaming might be a tendency to take inappropriate subjects to “get them out of the way” under Pass/No Record. “Inappropriate subjects” in this case are defined as subjects that a student is unprepared for, either because he or she has not passed the prerequisite(s) or because the student lacks a level of intellectual maturity necessary to get the most out of the subject.

A limited number of subjects recur in the discussion of this type of gaming strategy, especially when it comes to students not having the prerequisites. As mentioned above, 6.002 in Spring 2000 was particularly worrisome. At the same time, past review of the problem by the Dean’s Office has indicated that only around 10% of freshmen register for advanced subjects without having the prerequisites. Although taking subjects without the prerequisites is a temptation under Pass/No Record, this narrow problem could be addressed more appropriately by clarifying the right of faculty to exclude such students from their subjects and encouraging the Registrar to identify such students early in the term. Such a pilot program is currently under way in the Physics Department.

Finally, many faculty members and administrators single out 6.001 as the type of subject that freshmen take to “get out of the way” under Pass/No Record. In AY1999–2000, 313 freshmen took 6.001. Although some freshmen may be taking 6.001 for the “wrong” reasons, it is likely that the vast majority are making the correct choice of taking 6.001 when they do, since it is the gateway subject to the largest major at the Institute, and it has no prerequisite.

A final type of gaming strategy may be the shifting of attention away from one subject in order to concentrate an inordinate amount of time on another. We have no firm grasp of how prevalent this problem is. It is also not clear that even if this is a widespread phenomenon that it is necessarily a “problem,” since one of the expressed goals of the original Pass/Fail system was to allow freshmen extra latitude to explore topics that especially interested them.
8. **How does the awarding of advanced placement credit influence student choices in the first year?**

Behind this question is an assumption that an extensive granting of advanced placement credit may interact with Pass/No Record grading to produce an especially volatile mix. With additional “free” slots in the schedule, a student might be tempted to push ahead and take exceptionally difficult advanced subjects, to get them out of the way without the discipline of letter grades.

As mentioned many times already, most students come to MIT with at least one advanced placement subject, and so there is an “extra” subject at the disposal of most students in the Spring Term of the freshman year. Nonetheless, the subjects with the largest enrollments outside the GIRs either flow naturally from the GIRs (e.g., 18.03), are first subjects in popular majors (e.g., 6.001, 2.001), or are HASS-D or first subjects in popular HASS concentrations (e.g., 9.00, 14.01). Advanced placement credit causes some acceleration in the major programs for a significant number of students.
Figure II-A-1

Distribution of Grades Received by MIT Undergraduates, AY1999–2000.

Freshmen

Sophomores

Juniors

Seniors

Source: Registrar’s Office
Part II: Pass/No Record Grading

Figure II-A-2

Distribution of Self-reported Hours/week Spent on Subjects, Spring 1999.
(Note: Vertical bar in each graph indicates the location of 12 units).

<table>
<thead>
<tr>
<th>Subject</th>
<th>Mean</th>
<th>s.d.</th>
<th>skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Requirement</td>
<td>9.3</td>
<td>3.3</td>
<td>0.86</td>
</tr>
<tr>
<td>HASS-E</td>
<td>10.0</td>
<td>4.4</td>
<td>3.26</td>
</tr>
<tr>
<td>HASS-D</td>
<td>10.9</td>
<td>3.9</td>
<td>1.54</td>
</tr>
<tr>
<td>LAB</td>
<td>14.3</td>
<td>7.0</td>
<td>2.01</td>
</tr>
<tr>
<td>REST</td>
<td>11.6</td>
<td>5.5</td>
<td>2.19</td>
</tr>
<tr>
<td>Other</td>
<td>10.8</td>
<td>5.4</td>
<td>2.06</td>
</tr>
</tbody>
</table>

Source: Subject Evaluation Guide data, Spring 1999; Population: All undergraduates.
Table II-A-1

Enrollments of Freshmen, AY1998–99

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>IAP</th>
<th>Spring</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>111</td>
<td>0</td>
<td>204</td>
<td>315</td>
</tr>
<tr>
<td>Chemistry</td>
<td>674</td>
<td>0</td>
<td>63</td>
<td>737</td>
</tr>
<tr>
<td>Calculus I</td>
<td>435</td>
<td>28</td>
<td>18</td>
<td>481</td>
</tr>
<tr>
<td>Calculus II</td>
<td>742</td>
<td>170</td>
<td>270</td>
<td>1,182</td>
</tr>
<tr>
<td>Physics I</td>
<td>896</td>
<td>131</td>
<td>104</td>
<td>1,131</td>
</tr>
<tr>
<td>Physics II</td>
<td>108</td>
<td>1</td>
<td>781</td>
<td>890</td>
</tr>
<tr>
<td>REST</td>
<td>251&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12</td>
<td>1,321&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1,584</td>
</tr>
<tr>
<td>HASS-E</td>
<td>227</td>
<td>13</td>
<td>443&lt;sup&gt;c&lt;/sup&gt;</td>
<td>683</td>
</tr>
<tr>
<td>HASS-D</td>
<td>847&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0</td>
<td>549</td>
<td>1,396</td>
</tr>
<tr>
<td>LAB</td>
<td>1</td>
<td>0</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>All other</td>
<td>211</td>
<td>172</td>
<td>192</td>
<td>575</td>
</tr>
<tr>
<td>Total</td>
<td>4,503</td>
<td>527</td>
<td>3,962</td>
<td>8,992</td>
</tr>
</tbody>
</table>

<sup>a</sup>Includes 116 enrollments in 5.12 (Organic Chemistry).

<sup>b</sup>Includes 608 enrollments in 18.03 (Differential Equations), 248 in 6.001, and 138 in 6.002 (Circuits and Electronics).

<sup>c</sup>Includes 163 enrollments in 14.01 (Microeconomics).

<sup>d</sup>Includes 217 enrollments in 9.00 (Introduction to Psychology).
### Subjects with More than 50 Freshmen Enrolled, AY1999–2000

#### a. Fall

<table>
<thead>
<tr>
<th>Subject</th>
<th>Name</th>
<th>Total</th>
<th>Freshmen</th>
<th>Pct. Freshmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.091</td>
<td>Intro. to Solid State Chemistry</td>
<td>310</td>
<td>290</td>
<td>93.5</td>
</tr>
<tr>
<td>5.11</td>
<td>Principles of Chemical Science</td>
<td>298</td>
<td>274</td>
<td>91.9</td>
</tr>
<tr>
<td>5.12</td>
<td>Organic Chemistry I</td>
<td>316</td>
<td>109</td>
<td>34.5%</td>
</tr>
<tr>
<td>6.001</td>
<td>Structure &amp; Interpretation of Computer Programs</td>
<td>264</td>
<td>82</td>
<td>31.1%</td>
</tr>
<tr>
<td>7.012</td>
<td>Introductory Biology</td>
<td>363</td>
<td>84</td>
<td>23.1%</td>
</tr>
<tr>
<td>8.01</td>
<td>Physics I</td>
<td>508</td>
<td>483</td>
<td>95.1%</td>
</tr>
<tr>
<td>8.01X</td>
<td>Physics I</td>
<td>171</td>
<td>164</td>
<td>95.9%</td>
</tr>
<tr>
<td>8.012</td>
<td>Physics I</td>
<td>90</td>
<td>90</td>
<td>100.0%</td>
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<tr>
<td>8.01L</td>
<td>Physics I</td>
<td>77</td>
<td>72</td>
<td>93.5%</td>
</tr>
<tr>
<td>9.00</td>
<td>Introduction to Psychology</td>
<td>306</td>
<td>153</td>
<td>50.0%</td>
</tr>
<tr>
<td>14.01</td>
<td>Principles of Microeconomics</td>
<td>267</td>
<td>52</td>
<td>19.5%</td>
</tr>
<tr>
<td>18.01A</td>
<td>Calculus I</td>
<td>201</td>
<td>196</td>
<td>97.5%</td>
</tr>
<tr>
<td>18.01</td>
<td>Calculus I</td>
<td>180</td>
<td>175</td>
<td>97.2%</td>
</tr>
<tr>
<td>18.02</td>
<td>Calculus II</td>
<td>394</td>
<td>354</td>
<td>89.8%</td>
</tr>
<tr>
<td>18.02A</td>
<td>Calculus</td>
<td>200</td>
<td>198</td>
<td>99.0%</td>
</tr>
<tr>
<td>24.00</td>
<td>Problems of Philosophy</td>
<td>109</td>
<td>59</td>
<td>54.1%</td>
</tr>
<tr>
<td>24.04</td>
<td>Justice</td>
<td>155</td>
<td>78</td>
<td>50.3%</td>
</tr>
<tr>
<td>21W.730</td>
<td>Expository Writing</td>
<td>125</td>
<td>60</td>
<td>48.0%</td>
</tr>
<tr>
<td>SEM.XL1</td>
<td>You Can Be a Success</td>
<td>67</td>
<td>67</td>
<td>100.0%</td>
</tr>
<tr>
<td>SP.211</td>
<td>ESG: Experimental Studies Group</td>
<td>57</td>
<td>57</td>
<td>100.0%</td>
</tr>
<tr>
<td>SP.311</td>
<td>Concourse Program</td>
<td>53</td>
<td>53</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

(continued)
### Table II-A-2 (continued)

Subjects with More than 50 Freshmen Enrolled, AY1999–2000

#### b. Spring

<table>
<thead>
<tr>
<th>Subject</th>
<th>Name</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>1.00</td>
<td>Computers and Engineering Problem Solving</td>
<td>200</td>
</tr>
<tr>
<td>2.001</td>
<td>Mechanics and Materials I</td>
<td>88</td>
</tr>
<tr>
<td>5.11</td>
<td>Principles of Chemical Science</td>
<td>77</td>
</tr>
<tr>
<td>5.60</td>
<td>Thermodynamics and Kinetics</td>
<td>236</td>
</tr>
<tr>
<td>6.001</td>
<td>Structure &amp; Interpretation of Computer Programs</td>
<td>302</td>
</tr>
<tr>
<td>6.002</td>
<td>Circuits and Electronics</td>
<td>261</td>
</tr>
<tr>
<td>7.013</td>
<td>Introductory Biology</td>
<td>261</td>
</tr>
<tr>
<td>7.014</td>
<td>Introductory Biology</td>
<td>185</td>
</tr>
<tr>
<td>8.01</td>
<td>Physics I</td>
<td>107</td>
</tr>
<tr>
<td>8.02</td>
<td>Physics II</td>
<td>663</td>
</tr>
<tr>
<td>8.022</td>
<td>Physics II</td>
<td>74</td>
</tr>
<tr>
<td>8.02X</td>
<td>Physics II</td>
<td>154</td>
</tr>
<tr>
<td>14.01</td>
<td>Principles of Microeconomics</td>
<td>340</td>
</tr>
<tr>
<td>16.00</td>
<td>Introduction to Aerospace Design</td>
<td>54</td>
</tr>
<tr>
<td>18.02</td>
<td>Calculus II</td>
<td>237</td>
</tr>
<tr>
<td>18.03</td>
<td>Differential Equations</td>
<td>685</td>
</tr>
<tr>
<td>21W.730</td>
<td>Expository Writing</td>
<td>34</td>
</tr>
</tbody>
</table>
Table II-A-3

GPA of MIT Students, by Term, AY1995–96 to AY1999–2000

<table>
<thead>
<tr>
<th></th>
<th>All Subjects</th>
<th>HASS-D Subjects&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>Frosh</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Sophomores</td>
<td>4.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Juniors</td>
<td>4.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Seniors</td>
<td>4.3</td>
<td>4.3</td>
</tr>
</tbody>
</table>

<sup>a</sup>HASS-D data only cover AY1995–96 to AY1998–99

Source: Registrar’s Records
Table II-A-4

Average Reported Time Spent Each Week on 12-Unit Subjects, Calendar Year 1999
(Standard deviations in parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Spring</th>
<th>Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Requirement</td>
<td>9.3</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>(3.3)</td>
<td>(3.6)</td>
</tr>
<tr>
<td>HASS-E</td>
<td>10.0</td>
<td>10.3</td>
</tr>
<tr>
<td></td>
<td>(4.4)</td>
<td>(4.3)</td>
</tr>
<tr>
<td>HASS-D</td>
<td>10.9</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>(3.9)</td>
<td>(4.1)</td>
</tr>
<tr>
<td>LAB</td>
<td>14.3</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>(7.0)</td>
<td>(6.4)</td>
</tr>
<tr>
<td>REST</td>
<td>11.6</td>
<td>11.6</td>
</tr>
<tr>
<td></td>
<td>(5.5)</td>
<td>(5.4)</td>
</tr>
<tr>
<td>Other (mostly electives in sci. &amp; eng.)</td>
<td>10.8</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td>(5.4)</td>
<td>(6.6)</td>
</tr>
</tbody>
</table>

Source: Subject Evaluation Guide.

Population: All undergraduates.
Part II: Pass/No Record Grading

Table II-A-5

Unit Load Carried by MIT Undergraduates, AY1999–2000

a. Averages

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th></th>
<th></th>
<th>Spring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>s.d.</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Freshmen</td>
<td>51.8</td>
<td>54</td>
<td>4.2</td>
<td>50.9</td>
<td>51</td>
</tr>
<tr>
<td>Sophomores</td>
<td>51.4</td>
<td>51</td>
<td>9.6</td>
<td>51.6</td>
<td>51</td>
</tr>
<tr>
<td>Juniors</td>
<td>51.6</td>
<td>51</td>
<td>10.6</td>
<td>50.4</td>
<td>48</td>
</tr>
<tr>
<td>Seniors</td>
<td>47.0</td>
<td>48</td>
<td>11.7</td>
<td>43.1</td>
<td>45</td>
</tr>
</tbody>
</table>

b. Distribution of units

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th></th>
<th></th>
<th>Spring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 45</td>
<td>45-51</td>
<td>&gt; 51</td>
<td>&lt; 45</td>
<td>45-51</td>
</tr>
<tr>
<td>Freshmen</td>
<td>5.3%</td>
<td>32.7%</td>
<td>63.0%</td>
<td>5.6%</td>
<td>56.7%</td>
</tr>
<tr>
<td>Sophomores</td>
<td>15.9%</td>
<td>47.1%</td>
<td>37.0%</td>
<td>14.2%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Juniors</td>
<td>17.4%</td>
<td>40.0%</td>
<td>42.6%</td>
<td>20.3%</td>
<td>43.5%</td>
</tr>
<tr>
<td>Seniors</td>
<td>34.1%</td>
<td>38.6%</td>
<td>27.3%</td>
<td>49.9%</td>
<td>27.0%</td>
</tr>
</tbody>
</table>
Appendix II-B
Review of Pass/No Record System in Light of 1972 Goals

In this section we review the current Pass/No Record system in light of the seven goals specified in 1972 as part of the CEFP report. (See the Subcommittee’s charge, Appendix I-A.) On the whole, the Subcommittee found that the 1972 goals were a useful starting point in evaluating the current Pass/No Record grading system. We also found one of the minor goals so vague as to be useless for evaluating the system. Finally, we found that we need to articulate two new goals. Therefore, the Subcommittee suggests the following seven goals as providing the basis for evaluating the current Pass/No Record system and proposing any new changes to that system. Goals 1 and 4–7 were taken directly from the 1972 report of the CEFP. Goals 2 and 3 are new.

1. Relieve the anxiety and sense of pressure felt by incoming MIT students during the year of their transition from secondary school to work in a university of high quality and high expectation.

Relief of anxiety and pressure associated with the first year at MIT is a goal that is served well by the Pass/No Record system. The relief of anxiety and pressure is the most frequently-mentioned reason why the students we have spoken to like it, and is a supporting reason mentioned by many faculty and administrators, too. Not only is this relief of anxiety and pressure appreciated in its own right, but all recognize that first year students take advantage of the lessened academic pressure to explore a wide variety of extracurricular activities.

Faculty are virtually unanimous in agreeing that this effect is good and succeeds in the Fall. Many faculty express regret in the culture of gamesmanship that infects the system as it plays out in the Spring. This gamesmanship compromises the level of academic focus in that term, ultimately degrading the overall educational experience of many freshmen.

One issue that has been underappreciated in the concern over transition from high school to MIT is the next transition step, from freshman year to sophomore year. Because of the way Pass/No Record is structured, sophomores face two daunting transitions—to externally reported grades and into departments. What is referred to as the “sophomore wall” undoubtedly comes about from the confluence of these two pressures.
Part II: Pass/No Record Grading

2. Encourage the acquisition of foundational knowledge of science, the humanities, arts, and social sciences and encourage the exercise of the intellectual abilities of our students.

The grading system should encourage freshmen to become adequately prepared for the later rigors of MIT’s academic life. A comprehensive review of the grading system suggests that, in many ways, Pass/No Record grading helps to fulfill this goal. Broadly speaking, when students speak of the uncertainties they face when first coming to MIT, and of the value that Pass/No Record grading had in helping them overcome those uncertainties, they are testifying to the assistance that the grading system lends in helping students learn by removing the distractions of self-doubt.

There is also broad evidence that the current grading system eventually undermines a mastery of fundamental material. In one sense it must do that, at least a little. Yet a small sacrifice in academic mastery may be a price worth paying if it leads in the long run to a better-prepared and more confident student. Still, the less the Pass/No Record system functions as an innocent safe haven for student adjustment and the more it functions as a system that actively encourages inattention to studies, the more it becomes an active tool for avoiding material that must be mastered before going on to the sophomore year. And when that happens, the short term costs of the grading system do not exceed its long term benefits.

3. Encourage the development of social skills and acumen for MIT and beyond.

The backgrounds and expectations of entering MIT students are more varied now than they ever have been, not only because there has been a small shift away from engineering, but also because the engineering profession itself is changing rapidly. Still, there is a stereotype of MIT undergraduates, not entirely divorced from reality, that depicts many of them as academically developed at the expense of their social development. Therefore, Pass/No Record grading affords freshmen an opportunity to expand their horizons beyond the books and computers and into the larger social realm.

The most serious concerns that have been raised about the current operation of the Pass/No Record system have to do with the issue of balance between social skills, on the one hand, and academic skills, on the other. The current system lacks serious constraints on the allocation of extracurricular time, which undermines the ability of students to strike an appropriate balance. We do not recommend the creation of the equivalent of a “credit limit” for extracurricular activities, but we do note that a traditional system of letter grades would place extracurricular exploration within a more appropriate context.

4. Develop in each student a more mature motivation for his or her university education and a more active, expressive involvement in his studies; and to give the student a
Part II: Pass/No Record Grading

sense of freedom to make a wider choice of subjects and a wider choice in the allocation of time among subjects when a topic within any one of them strikes that student as especially exciting.

This goal has three components—mature motivation, selective attention to material, and exploration—which will be discussed separately.

Mature self-motivation. There is mixed evidence that Pass/No Record grading helps to advance the development of a more mature motivation for university education.

MIT students get admitted because they have proven themselves able to take the initiative; the vast majority continue that course throughout their four years at MIT, including the freshman year. At an institution like MIT, however, grading systems never work as the primary motivator for hard work—grades work on the margin. In a world in which all successful people are rewarded (through money, prestige, awards, etc.) on the margin for working harder than their self-motivation would carry them, it is contrary to everyday experience to imagine that extrinsic rewards would not cause many MIT undergraduates to apply themselves even more effectively to their studies. In other words, universities have long had the experience that a grading system can be useful in concentrating the minds of even the most motivated students.

Some of the strongest evidence that Pass/No Record grading undermines the development of a mature motivation for learning comes from the students themselves. The common advice given by upperclassmen to freshmen that they should get certain subjects “out of the way” under Pass/No Record is clear evidence of gamesmanship. Questions of instructors by students of what is necessary to “pass this course” is also clear evidence that mature self-motivation has not been achieved.

Selective engagement with material. This sub-goal is not an unmitigated good, and is probably the source of some tension between faculty and students. Encouraging freshmen to neglect subjects that do not interest them in order to concentrate on subjects that do has a real cost. Most importantly, it undermines the mastery of fundamental knowledge that is supposed to be imparted in the freshman year. Although students may have a rough sense about which material they encounter in the freshman year will be useful later on, they rarely know this with precision. Many faculty who teach the entry-level subjects in majors express frustration with precisely this phenomenon, as they must spend an inordinate amount of time reviewing material that should have been mastered in the freshman year.

A second, less obvious effect of selective engagement with the material is on the morale of instructors who teach students who are discouraged from taking their subjects seriously. The Subcommittee heard testimony from Science Requirement lecturers to the effect that
Part II: Pass/No Record Grading

this was a big problem as the Spring Term progresses. Attendance in lectures and recitation sections is a big problem. Finally, if faculty members in departments responsible for the Science Requirement believe that freshmen are discouraged from engaging with material due to the grading system, they will be less likely to invest energy in innovating in the teaching of those subjects.

Exploration. In assessing this sub-goal the first thing to be said is that there is no one good definition of what constitutes academic exploration. For some this means exploring alternative paths of majors. For others it means exploring new and exotic fields of knowledge for the purpose of broadening one’s horizons.

Even though the paths through the freshman year are various, owing to the different levels of advanced placement credit that freshmen enter with, the side trips do appear to be limited. The great bulk of enrollments outside the GIRs are accounted for by “sophomore-level” subjects that impart general skills that are applicable to a host of majors, such as 18.03, various computer programming subjects, and a few highly-enrolled HASS subjects. Students frequently mention deferring exploration to senior year, when major requirements are largely out of the way and a sufficient number of units have been accumulated to graduate. Therefore, empirically speaking, it is difficult to conclude that the current Pass/No Record system is a major inducement to exploration. Other features of the undergraduate program have a greater effect than freshman grading—particularly advanced placement, the absence of a credit limit, and the HASS requirement—which push exploration into the later years.3

The logic of the Pass/No Record grading system also mitigates against exploration in the freshman year, if by exploration we mean taking subjects off the beaten path. In many majors there exists a subject that is widely-known to be tough and threatening to one’s GPA. If a freshman, anticipating his or her future academic path, knows with high certainty that he or she will have to take such a subject eventually, it makes sense in the short term to take the hard subject on Pass/No Record. (Also affecting this calculus is the fact that grades given in HASS subjects are slightly higher than in the rest of the Institute and therefore deferring the exploration of HASS subjects until the sophomore year or beyond also makes a certain type of sense for building a solid GPA.)

This discussion of exploration has focused on academic concerns, but there is also the issue of balance between curricular and extracurricular activities. Pass/No Record grading certainly opens up many extracurricular opportunities to freshmen who report partaking of these opportunities at high rates. (See, for instance, the 1995 and 1999 Freshman Year

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3Students also frequently voice the view that an important barrier to freshman year exploration is the lack of subjects that allow them to explore majors in science and engineering departments without having completed all the subjects in the Science Requirement. Exemplary counter-examples include subjects like 16.00. It is the Subcommittee’s sense that changes to the curriculum, including the addition of new exploratory subjects, would do more to encourage academic exploration than changing the freshman grading system.
Part II: Pass/No Record Grading

Surveys.) There is a lot that is positive about this. However, unlike the curricular world, in
which there is a credit limit to help inform students about what is “too much,” the
extracurricular world at MIT does not have the equivalent of a “credit limit” for freshmen.
What to undergraduates appears to be exciting exploration of many extracurricular options
in the freshman year appears to many faculty members as being an unconstrained (except
by sleep) overload of extracurricular activities. Although the review of extracurricular
activities of freshmen is beyond this Subcommittee’s charge, we cannot help but note the
possibility that Pass/No Record grading has created a culture of hyperactivity on the
extracurricular side that causes the quality of such activities to suffer.

This issue of the appropriate balance of time between curricular and extracurricular
activities has become more critical in recent years, and will continue thus, owing to the
evolving selection criteria for admitting undergraduates to MIT. Nowadays there are so
many applicants who are academically prepared for admission to MIT that the strictly non-
academic qualities of applicants loom larger in discriminating between those who are
admitted and rejected. The challenge for faculty and administrators who work with the first
year program is to transform the extracurricular eagerness of freshmen from one that leads
to a high quantity of extracurricular commitments to one that leads to a high quality of
commitments. Even if the current freshman grading system discourages an optimal balance
between extracurricular and curricular endeavors, changing the grading system alone will
unlikely bring the two into proper balance.

5. Give incoming students a year in which to compensate for differences in their
   secondary school preparation.

The heterogeneity of high school preparation is a factor that both students and faculty must
contend with. Longstanding evidence at the Institute suggests that, with very few
exceptions, students who are admitted to MIT with deficiencies in their backgrounds quickly
catch up and are as successful as those who come from privileged backgrounds. Providing
a relatively low-pressured environment in which such catching up can proceed—in a way
that does not stigmatize students needing a little extra preparation—is unquestionably
valuable.

The Subcommittee’s review of Admissions Office records, along with an interview with
the Dean for Admissions, suggests that there should be significantly less concern over the
heterogeneity of the preparation of entering students, compared to ten years ago, and
certainly compared to thirty years ago. As measured by their performance on the indices
used by the Admissions Office to guide their decisions, the entering students who are the
least prepared now would have been close to the middle of the pack admitted twenty and
thirty years ago. Therefore, although MIT still needs to expend effort making sure that all of
its admitted students are prepared for the full rigors of MIT, it is important to keep the
relative degree of disparity among currently-entering students in perspective.
In discussing the desire to allow first year students to compensate for differences in their secondary school preparation, it bears reminder that virtually all students, regardless of prior preparation, need to overcome bad habits developed in secondary school and acquire new study skills that were unnecessary before coming to MIT. Although entering students are advised that the academic environment at MIT is qualitatively different from high school, there is no substitute for direct experience to drive the point home. Even the best-prepared students need time to internalize the new academic pace they are confronting and master the study skills necessary to deal effectively with it. The current freshman grading system therefore assists well-prepared students acclimate to the MIT academic environment by giving them room to compensate for their own needs to overcome insufficient prior preparation.

6. **Enrich the evaluation of student performance and experience in each subject.**

The original Pass/Fail system replaced letter grades for freshmen with a system of narrative evaluations of all freshmen by instructors. This system brought mixed reviews, after numerous attempts to salvage it, and was abandoned in 1995.

On the positive side, faculty, advisors, and students recognized that the narratives, when completed, provided a much greater depth of evaluation and self-assessment than was possible with letter grades. Also, the system involved narrative evaluations given twice each semester, at mid-term and at the end. The mid-term performance evaluations were especially useful in nudging students back on track or in encouraging students who underappreciated their own efforts. The narrative provided a useful moment of self-evaluation for freshmen, who were required to initiate the process with a narrative evaluation of their own performance in each subject. Advisors found the system useful because of the richness of the feedback.

On the negative side, faculty found the system imposed an onerous administrative burden, especially those faculty teaching large lecture subjects. Many students neglected their duties to the system, too. Therefore, not all the forms were filled out, and the system left many gaps.

Replacing this system in 1995 was the current Fifth Week Flag, which identifies students who are in danger of failing and communicates this fact with them and their advisors. This has proven to be an efficient and effective system, but it is limited. The failure to communicate with students who are doing better than failing but who could easily fall into that category is a limitation of the current system.

The performance evaluation of freshmen under the Pass/No Record system is the one area in need of greatest improvement.
7. Change the image of MIT as a school that grinds out students mechanically, a school that only “tools” would find congenial.

There are two ways of interpreting this goal. First, it could mean that the Pass/No Record grading system should signal that MIT does not expect its students to be driven to the extreme, and to the exclusion of non-academic pursuits. If this is the meaning of this goal, then the current system of Pass/No Record grading is successful. Indeed, it is successful because it has signaled to the outside world that MIT does encourage exploration outside the classroom, especially in the freshman year, without creating the impression that MIT is “soft.”

The second interpretation of this goal is that Pass/No Record grading should signal that MIT expects its students to excel across a broad range of academic subjects, and gives them the latitude to begin this exploration in the freshman year in a low-risk atmosphere. We have seen no evidence that this feature of the grading system has actually been picked up by people outside MIT. Other features of MIT academic program, such as the strong presence of the humanities, arts, and social sciences, and the rich offering in extracurricular activities probably dwarf any effect in this regard that the grading system would have.
Appendix II-C
Pass/No Record Reform Alternatives

1. Fall term P/NR. Spring term A/B/C/NR.

2. Fall term P/NR. Spring term A/B/C/NR for most students. Poorly-performing students allowed to continue under P/NR in the Spring.

3. Eliminate P/NR altogether, both terms, or only in the Spring

4. A/P/NR. (That is, current system applies, except instructors may designate exceptional performance with an A).

5. Designated classes under P/NR, whenever they are taken. These subjects might be in the Science Requirement or the first class in a major.

6. Designated classes under grades. (That is, subjects may be designated as requiring letter grades regardless of when they are taken.)

7. Eight P/NR subjects. (That is, students get eight subjects on P/NR, whenever they want, distributed across all four years.)

8. P/NR for all subjects, all four years.

9. First class in any major P/NR.

10. The major on grades, all other subjects on P/NR.

11. No classes under P/NR without prerequisite.

12. Aggregate GPA for freshman year. (That is, calculate and report the aggregate GPA for freshmen, but do not externally report individual grades.)