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Everything You Need to Know About Developing a Grading Plan for Your Course (Well, Almost)

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Regardless of experience, most faculty encounter problems when developing grading plans for the courses they teach, a task made more difficult by the realization that everything they know about a student's performance will, in most instances, have to be summarized in a letter grade. The use of "unidimensional symbols . . . to report multidimensional phenomena" (Milton & Edgerly, 1976, p. 44) is complicated by a general lack of knowledge about grading alternatives on the part of many faculty. Most faculty readily acknowledge this deficiency, as evidenced by their comments at seminars and workshops conducted on college and university campuses by the senior author. In this article, we provide information that should help faculty approach the task of designing a grading plan with a new sense of confidence.

We begin with a brief history of grades, which demonstrates the history-repeating-itself phenomenon at work. We then describe the four approaches to grading commonly used today and discuss the pros and cons of each. We examine the purposes of grades, problems with current grading practices, and situational factors to consider in selecting a grading approach. We conclude by proposing eight principles to observe in developing a grading plan, regardless of the type of course or grading approach.

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Highlights in the History of Grading

According to Milton, Pollio, and Eison (1986), grades were first used in this country at Yale in 1783 and carried the titles *optime* (honor men), *second optime* (pass men), *inferiores* (charity passes), and *peiores* (unmentionables). In 1800, Yale began giving marks on a scale of 0 to 4. Three years later, students' averaged marks ranged from 1.3 to 3.7; thus, the grade point average was born.

At William and Mary College, the following scale was used in the early 1800s to describe student performance in reports sent to parents:

No. 1. The first in their respective classes, orderly and attentive and have made the most flattering improvement.

No. 2. Orderly, correct and attentive and their improvement has been respectable.

No. 3. They have made very little improvement and as we apprehend from want of Diligence.

No. 4. They have learnt little or nothing and we believe on account of escapaid [sic] and Idleness. (Milton, Pollio, & Eison, 1986, p. 4)

In 1850, the University of Michigan instituted a pass-fail system in which the only mark given was a +; no score was recorded for failure. By 1860, the system was modified to stipulate a minimum score of 50 for a grade of +.

In 1883, Harvard started using letter grades, a system that caught on and spread quickly across the nation. Problems arose, however, with the range of variability and reliability of letter grades, because institutional guidelines for failure differed greatly. For example, Mount Holyoke set the failing point at 75%; Michigan, 50%; and Harvard, a surprisingly low 26%.

In the early 1900s, a professor at the University of Missouri failed an entire class, an action that was unacceptable according to university policy and overruled by the governing board. Another professor, Max Meyer, took an interest in the episode and began an investigation of the university's grading practices, which showed that they varied dramatically throughout the institution. As a solution, Meyer suggested that grades for the *class* be based on a distribution curve in which the top 3% would be judged *excellent*; the next 22%, *superior*; the middle 50%, *medium*; the next lowest 22%, *inferior*; and the bottom 3%, *failure*, with the assignment of letter grades A, B, C, D, and F, respectively. This form of grading gained popularity rapidly during World War 1.

The “era of objectivity” began in 1915, with multiple choice and true-false tests making their first appearance. Referred to as “scientific grading,” this style came into wide use because of the ease and speed of grading (Milton, Pollio, & Eison, 1986, p. 8).

The pass-fail system reappeared in the mid-1960s at the University of California, Berkeley, and at first, both students and professors reveled in the enthusiasm it generated. After a few years, however, the pass-fail system lost its attraction, and enrollment rates for such courses decreased significantly. One explanation for the dwindling appeal was that it was not the pass-fail system itself that had created the excitement but rather the idea of change.

There have been no major new developments in college-level grading since the 1960s. Instead, minor modifications to earlier approaches have been made. For example, pass-fail grading has evolved at some institutions to *high pass, pass, and fail*; or the grades A, B, C, D, and F have been modified by a + or -.

Approaches to Grading

In the following section, we discuss the characteristics of the four approaches to grading—norm-referenced, criterion-referenced, mastery learning, and pass-fail—as well as their advantages and disadvantages. For ease of reference, we have included charts summarizing the advantages and disadvantages of each approach (Appendix A, Tables A-1 and A-2).

Norm-Referenced Grading

Norm-referenced grading developed because of problems in selecting and predicting those who could succeed in institutions of higher education and because a standard measuring unit was needed (Milton & Edgerly, 1976). In essence, norm-referenced grading compares students to one another to ascertain each student's relative position within a given class or group of students. In norm-referenced grading, the meaning of any one score is derived from a comparison with other scores in the norm group. This form of grading frequently is referred to as the “curve,” because it promotes the concept of a normal distribution in which there is a small number of both superior and failing students, with a large group in between. Such a distribution lends itself well to assigning letter grades.

Pros. Norm-referenced grading is helpful when discriminations among individuals must be made, for example, to select a fixed quota from the top of a group, as in the case of students applying to professional schools. This form of grading also is appropriate when a given distribution of

grades is called for (a certain percentage of As, for example). Norm-referenced grading is widely used and accepted and therefore requires little explanation or faculty training.

Cons. Because norm-referenced grading creates a relative standard that moves up or down depending on the performance of each group, it describes whether one student is more or less proficient than another but not how proficient that student is with respect to the material covered. In other words, norm-referenced grading assesses student status, not learning. It creates the illusion of a standard by which students can be assessed equitably; in fact, many standardized tests are constructed deliberately to produce a normal distribution curve. A major criticism of this approach is that the entering capabilities of students, and not their performance during the course, are often the determining factor in grading. In addition, instructors who use this type of grading assume that grades will fall into a normal distribution curve, the result of random activity. This assumption can lead to a self-fulfilling prophecy that a few students will be high achievers, many will do moderately well, and some will fail. Teaching, however, is a purposeful activity, and it can be argued that any relationship between purposeful teaching and a normal curve indicates poor teaching.

The potential negative effects of norm-referenced grading on students pose several additional disadvantages. Students who are below the norm may be labeled incompetent or below average learners, although actually they may be quite able. These students may develop feelings of inadequacy that persist and diminish their chances of reaching their fullest potential. In some instances, the cumulative effect of the norm-referenced system can prevent talented students from being admitted to graduate schools. The reverse situation is that minimally competent (or incompetent) yet *top-ranked* students are allowed to complete a course or program. Another adverse effect of norm-referenced grading is the undermining of cooperation between students. Knowing that their grades depend on the performance of other students can discourage students from sharing with one another. Students may believe that giving away their “secrets” may cost them a high ranking in the class. And, because grades cannot be determined until all the scores are tallied, anxiety is heightened; students worry about their grades until the end of the course. Finally, norm-referenced grading is a demotivator for most students, because only the most outstanding students can earn an A.

Criterion-Referenced Grading

In criterion-referenced grading, a student's achievement is measured with respect to a specified standard of quality that is based on a continuum of knowledge acquisition from no proficiency to perfect performance. An individual student's achievement level lies at a point on

this continuum resulting from performance. The student's grade thus is assigned independent of others.

Pros. Criterion-referenced grading is desirable when a faculty member wants to measure students' performance against a standard and not against each other's achievements. "This form of grading also is appropriate to select individuals who can perform a given task at a certain level of competence. Criterion-referenced grading is especially useful when public safety or other considerations demand that certain tasks be performed only by those who are fully qualified. By combining this approach to grading with valid criterion levels and entering prerequisites, faculty can state what students have learned, not how they rank when compared with others. In addition, in courses with cumulatively sequenced content, criterion-referenced grading can help ensure success in subsequent units by screening out learners who have not mastered the content of prerequisite units. This form of grading also is well suited to classes with significant numbers of high or low achievers, because grade distribution will not be affected. Finally, criterion-referenced grading may motivate students, because there are no predetermined limits on the number of students who can earn high grades; it is possible for all students to earn As.

Cons. Because it is less familiar to faculty, criterion-referenced grading requires explanation, defense, and training in establishing specified criterion levels. Use of criterion-referenced grading also can result in high grades for all the students in a class, or, if none perform at the prespecified criterion levels, all of them can fail, regardless of the quality of instruction. If all students do well, criterion-referenced grading will not eliminate a certain percentage of low-ranking students, as will normreferenced bell curves. A major concern of faculty using this approach is how to establish and defend the criterion levels for A, B, C, D, and F.

Mastery Learning

In 1922, Carleton Washburn experimented with a classroom model (the Winnetka Plan) based on the idea that students could achieve mastery of a subject if various instructional methods and media were used. This method disappeared during the 1930s, largely because the technology necessary for implementation was lacking. In 1954, B. F. Skinner introduced mastery learning, the concept that the most complex problems could be solved if the learner broke them into several small tasks and mastered them one by one. The "Model School of Learning," introduced in 1963 by John B. Carroll, was based on the premise that almost all learners could master a given subject if they were allowed enough time to do so. In 1968, Bloom incorporated these ideas into his working model of mastery learning (Block, 1971).

The basic premise of mastery learning is that every student has access to appropriate instruction, sufficient time to achieve mastery, and thus the opportunity to reach high levels of performance. Mastery learning is especially appropriate when there is a body of knowledge, concepts, skills, and attitudes that students must learn. Those credited with the development of mastery learning emphasize that it is not tied to one particular methodology and can employ a wide repertoire of instructional methods. This flexibility, coupled with its underlying principles, makes mastery learning an ideal way to teach those students for whom traditional classroom methods are ineffective.

Pros. The criteria for reaching specified competency levels are defined clearly in mastery learning. Its tenets encourage modification and alternative learning activities to achieve mastery, advocate giving frequent feedback to students, suggest that students be provided ample opportunity to exhibit their learning behaviors, recommend the use of encouragement and praise, and promise that a larger percentage of students will have successful and rewarding learning experiences. In mastery learning, as in criterion-referenced evaluation, the number of students who can succeed is unlimited; hence, students are encouraged to cooperate with each other and to compete only with themselves. All students are given multiple opportunities to achieve mastery, which accommodates those who may require more learning time. Students who persist and make satisfactory progress are allowed to remain in the class rather than becoming attrition statistics.

Cons. Because mastery learning focuses on students' achieving specified levels of competence, it has many of the same disadvantages as criterion-referenced evaluation. This is particularly true in that mastery learning (a) is unfamiliar to most faculty and thus requires explanation and training, especially in how to establish criterion levels; (b) makes it possible for all students to earn top grades, or to fail; and (c) will not ensure that a certain percentage of students are "weeded out."

Mastery learning has several other drawbacks. First, successful implementation requires extensive recordkeeping, because students may be working on different objectives, using a variety of learning approaches, and finishing individual units or the course itself at different times. Second, without adequate training, mastery learning easily can result in faculty feeling pressured to "teach to the test." Third, if mastery learning is implemented improperly, a large number of students can finish the term with grades of *incomplete*.

Pass-Fail Grading

Pass-fail grading is based on the assumption that students will be encouraged to explore areas outside their major if they do not have to worry that their grade point average may be lowered. This form of

grading goes by several aliases, including *honors-pass-fail*, *satisfactoryunsatisfactory*, and *acceptable-unacceptable*. *Pass-fail* refers only to the final grade in a course as recorded by the registrar. Activities in the *classroom* may be the same: homework assigned and evaluated, tests given, and all work graded numerically for students' information and self-evaluation. In the pass-fail grading system, the major difference is the simplification of symbols representing the assessment of student work. Proponents of the system hope that students will learn for learning's sake, not for grades, and gain a positive attitude toward learning that will stay with them for the rest of their lives.

Pros. Advocates claim that a great advantage of the pass-fail system is that it reduces students' anxiety about grades, thus freeing them to venture into new fields. Further, because there is no competition for grades, the pass-fail system increases the likelihood that students will engage in constructive, cooperative endeavors. And, because pass-fail assessment does not affect their overall grade point average, students will be motivated by reasons other than grades. Pass-fail grading in freshmanlevel courses can help alleviate the fear of failure felt by many entering students as they adjust to college, which in turn may reduce attrition rates. Pass-fail is considered especially beneficial for students who are capable of independent thinking and have the self-discipline to pursue a subject for the sake of learning.

Cons. Entrance into graduate school may be jeopardized by pass-fail systems, because this form of assessment cannot be used to discriminate among students. In addition, faculty standards for passing work may be low, thus allowing some students to pass with little effort. These students may develop a habit of doing just enough work to get by that carries over into traditionally graded classes.

Another negative aspect of pass-fail is that some students are so conditioned to receive high grades that they suffer psychologically when grade rewards are not given. The freedom inherent in this system disorients students who need grades as objectives; they tend to cut corners in their learning efforts to the point of sacrificing acquisition of fundamental knowledge and skills. Finally, and perhaps most important in the decision of many institutions to discontinue or restrict the pass-fail option, is that some faculty find that without the "grade club," they are unable to motivate students and even may experience discipline problems in the classroom.

Considerations in Selecting a Grading Approach

Before selecting a grading plan, it is important to consider the purposes that grades serve in the institution and in a particular class.

Determining the Purposes of Grades

Eiszler (1983) proposed the following taxonomy of the purposes of grades: They (a) allow agencies and institutions to make discriminations among individuals and their performance, (b) motivate learners, (c) give information to learners about the quality of their performance, (d) give limited information to the teacher about the quality of instruction, and (e) meet a variety of administrative and institutional needs related to the functioning of the institution.

Although all the purposes may sound logical, there are potential problems with each. For example, purposes (a) and (e) both focus on the same basic goal: using grades to make decisions about students. Unfortunately, the variation in grading practices among faculty within a given institution is so great that it cannot be said that an A is always an A or that any letter grade represents some definite achievement level. Consequently, it is a mistake for any institution to rely solely on grades in making discriminations among students or for many other current applications. Problems arise also concerning purpose (b), motivating learners. Not all students are motivated by grades; in fact, some students consider grades impediments to learning. To serve purpose (c), tests and other measures used to determine grades would have to be viewed by students as valid indicators of their performance. This assumption is highly suspect, given the current status of faculty knowledge about the construction of evaluation measures and the criticisms about faculty grading practices on most campuses. Purpose (d) also is flawed, primarily because of the idealistic assumption that student performance is a valid reflection of the quality of teaching and not a function of student ability, willingness to do the required work, or the "luck of the draw" (getting a "loaded deck" from the registrar).

Besides recognizing the purposes of grades and the problems with each, situational factors should be considered before selecting a grading plan. These factors include class size, the instructor's workload, and the nature of the subject taught, among others. Table A-3 in Appendix A illustrates several situational factors and the grading approaches that are most appropriate for each. For example, norm-referenced grading works well when a high degree of selectivity is required, such as when a specified number of students must fail or a fixed quota of students with high over" ability levels must be selected from a group. Criterion-referenced grading is appropriate when mastery of certain skills is prerequisite for advancement to higher levels, when the instructor wants to know what a student has learned without comparison to others, or when standards demand that only those who are qualified pass. Unless tasks must be performed at a specified level of competence, criterion-referenced grading is irrelevant, for without a standard, there is no criterion reference point. Mastery learning is suitable when content mastery is

required in successive units and when time and resources allow working with students who are at various levels. Pass-fail is acceptable when the students are capable and disciplined or when the instructor wishes to encourage students to explore unfamiliar areas.

Principles to Observe When Developing a Grading Plan

After considering the various grading approaches, the purposes a grading plan is to achieve, and situational constraints, there are eight principles to keep in mind when developing a grading plan for a given course.

Principle 1: Communicate the grading system in writing. Include, as a minimum, what will be measured, the *weight* attached to it, and a tentative *timetable* of due dates. The grading plan should be presented in the course syllabus and distributed during the first class meeting. The grading system might look like Figure 1.

Dates to Remember	Course Requirements	Points
--/--/--	Assignment #1	10
--/--/--	Assignment #2	10
--/--/--	Assignment #3	10
--/--/--	Term test #1	15
--/--/--	Term test #2	15
--/--/--	Book review	20
See exam week schedule	Final exam	20
	Total	100

Figure 1. Grading plan.

Principle 2: Measure a variety of behaviors. Too often a student's grade is determined by the performance of a single behavior, such as knowledge of facts on short-answer, objective tests or the ability to write a coherent, 10-page paper. If students are graded on only one dimension, assessment of learning will be inadequate. Figure 2 shows an example of a grading plan that calls for student performance of several types.

Principle 3: Provide prompt feedback. The key word in this principle is prompt, which will be defined differently by a beleaguered English professor who teaches several sections of freshman English and a social sciences instructor who uses machine-scored, limited-choice, objective quizzes. Most faculty with whom we have shared these principles (and

Home Economics 3403: Child Guidance

Course description: Guidance in child-parent relations and in the nursery school. Lecture two hours, participation in nursery school two hours a week.

Requirement	Points
Outside reading assignments (6 articles @ 2 points)	12
Tests based on textbook, outside reading assignments, laboratory experiences, and class discussion (4 tests @ 8 points)	32
Attending and evaluating laboratory experiences (32 hours @ .025 points)	8
Planning activities for young children (4 activities @ 1 point)	4
Carrying out activities (4 activities @ 1 point)	4
Evaluating activities (4 activities @ 1 point)	4
Evaluation of effectiveness in working with children (4 activities @ 1 point)	4
Class attendance (each class @ .11 points)	5
Project	12
Comprehensive final examination	15
Total	100

Grading scale: 90-100=A; 80-89=B; 70-79=C

Figure 2. Grading plan requiring different types of student performance.

who have helped to refine them) agree that an ideal definition of *prompt* is the next class meeting but that under no circumstances should new measurements be taken before students have been told how well they performed on the previous assessment.

Principle 4: Evaluate on different levels, that is, the six levels of Bloom's Taxonomy of Objectives: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, Engelhart, Furst, Hill, & Krathwol, 1956). If, for example, an instructor devotes an equal amount of time to objectives at each level of Bloom's taxonomy, then evaluation measures should be constructed to ensure that equal attention is given to assessing student performance at each level.

Principle 5: Weight types of performance according to importance. After determining what to evaluate, an instructor must decide how much weight is appropriate for each type of student performance. For example, should a test covering the first one third of the course be weighted the same as one covering the last one third, or, out of 1,000 total points possible in a course, should a paper be worth 100 points? 200 points?

Principle 6: Be creative in evaluating student performance. It is easy to develop a comfortable routine that eventually becomes a rut; for example, an instructor might settle into using the same grading approach in every course. Grading plans should be custom tailored to each course and reviewed periodically to see whether changes are needed.

Principle 7: Match evaluation measurements to course activities and objectives. In an unpublished survey on our campus, students were asked to comment on the strengths and weaknesses of the grading plans they had experienced. One of the most frequent criticisms was that the teacher lectured on one body of content and tested on another. It is important for instructors to define learning objectives clearly and to test only on those objectives.

Principle 8: Decide on retest possibilities. This applies particularly to the criterion-referenced and mastery learning approaches to grading. Both approaches require that instructors establish criteria for satisfactory performance, but what happens if a student fails to reach the minimal standard? This is a problem especially when a student performs poorly on a part of the course that is heavily weighted or for which a certain minimal performance is deemed essential (e.g., giving injections in a nursing class!). In such cases, most faculty give the student at least one more chance to demonstrate acceptable performance, but this allowance raises a host of other questions, including, How should the instructor treat those students who performed acceptably the first time? What procedure should be followed if a student is given another chance (e.g., What grade should be assigned? How many chances to pass should be allowed?) Once it is known that a teacher has offered one student a second chance, how many others will demand the same treatment? How many students will start to regard the first attempt as a low-effort trial run? How much additional work will this entail for the instructor (i.e., How many *different* tests will be required? How many additional papers will have to be graded?).

One approach to this dilemma is the following: A teacher may set mastery level at 85% or more correct responses, then award 100 points for succeeding on the first attempt, 85 points for the second, and 70 points for the third. No points would be given for 84% or fewer correct responses. A number of critical decisions must be made before using this approach: (a) the determination of a mastery (or satisfactory) level; (b) the number of points awarded for scoring at or above mastery on the first and subsequent attempts; and (c) the number of times a student is allowed to try. These answers are best determined after a period of trial and error.

Summary

Developing grading plans for courses is a perplexing problem for many faculty. Four approaches to grading are prevalent today: norm-referenced, criterion-referenced, mastery learning, and pass-fail. Each has advantages and disadvantages, and no one approach is always best. Instead, faculty must consider several factors to determine which style is most appropriate for a given instructional situation. Every instructor must decide first the purposes that grades will serve and then, considering the existing circumstances for any course, choose a grading approach. Once this analysis is complete, the instructor is ready to design a grading plan for the course. At that point, the eight principles described in this article should prove helpful. Careful, systematic attention to grading should result in a plan that fits the situation, meets the instructor's needs, and makes the course more enjoyable for both teacher and students.

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Appendix A

Table A-1
Advantages of the Four Commonly Used Grading Approaches

<i>Norm-Referenced</i>	<i>Criterion-Referenced</i>	<i>Mastery Learning</i>	<i>Pass-Fail</i>
Discriminates among individuals, regardless of overall ability level of group	Grades based on comparison against a standard, not performance of others	A larger percentage of students have successful, rewarding learning experiences	Reduces students' anxiety about grades
Provides even or predetermined grade distribution	Useful in selecting individuals who can perform at a given competence level	Promotes self-confidence in students	Encourages students to explore new fields
Most popular educational measurement	Indicates what a student has learned, not status in comparison to others	Encourages cooperation without eliminating competition	Reduces emphasis on competition and may renew interest in cooperation
Requires minimal faculty training	Can assess both teaching and learning if valid criterion levels and entering prerequisites exist	Students have multiple opportunities to demonstrate what they have learned	May improve students' attitudes toward learning

**Grade distribution
unaffected by unusual
number of high or low
achievers in one class**

**May reduce attrition
rates, especially among
first-year students**

**Motivating for most
students, because all
can earn top grades**

**Emphasizes learning
instead of grades**

**Motivating for
self-disciplined students**

Table A-2
Disadvantages of the Four Commonly Used Grading Approaches

<i>Norm-Referenced</i>	<i>Criterion-Referenced</i>	<i>Mastery Learning</i>	<i>Pass-Fail</i>
Based on a relative standard that changes with performance of each group	Unfamiliar, thus requiring explanation, defense, and faculty training in establishing criterion levels	Unfamiliar, thus requiring explanation, defense, and faculty training in establishing mastery levels	Creates problems in assessing academic records of graduate school applicants
Assesses students' status in relation to one another and not their proficiency in subject matter	Difficult to establish criterion levels	Difficult to establish mastery levels	Students may pass without learning much if faculty standards are low
Grades may be determined by students' entering capabilities, not performance in course	All students may earn top grades; no automatic "weeding out" of a certain percentage	All students may earn top grades; no automatic "weeding out" of a certain percentage	Students may develop habit of doing just enough work to get by
May lead to self-fulfilling prophecy that some students will be high achievers, many will do moderately well, and a few will fail	All students may fail, regardless of quality of instruction	All students may fail, regardless of quality of instruction	Some students require grades for motivation to study and to attend class

Assumes a normal distribution, the result of random activity, but teaching is a <i>purposeful</i> activity	Irrelevant if course includes no tasks that must be performed at a specified level of competence	Large number of students may receive grade of <i>incomplete</i>
May lower self-esteem and thereby hinder long-term achievements of capable students who receive low grades		Initially time-consuming for teacher to prepare and modify instructional approaches
Incompetent yet top- <i>ranked</i> students may complete a course or program		Teacher must work with students who are at various stages in the course
Encourages competition instead of cooperation		Faculty may be inclined to "teach to the test"
Increases grade anxiety because grades not determined until end of course		May require substantial changes in institutional practices (faculty load, class scheduling, reward system, etc.)
Demotivating for most students		Requires more extensive recordkeeping Requires the most faculty training

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May lower self-esteem and thereby hinder long-term achievements of capable students who receive low grades		Initially time-consuming for teacher to prepare and modify instructional approaches
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Encourages competition instead of cooperation		Faculty may be inclined to "teach to the test"
Increases grade anxiety because grades not determined until end of course		May require substantial changes in institutional practices (faculty load, class scheduling, reward system, etc.)
Demotivating for most students		Requires more extensive recordkeeping
		Requires the most faculty training

Table A-3

Situational Factors Influencing Selection of Grading Approach

<i>Norm-Referenced</i>	<i>Criterion-Referenced</i>	<i>Mastery Learning</i>	<i>Pass-Fail</i>
Certain number of students must fail	Criterion skills must be mastered before students begin another course or program	Content must be mastered before proceeding further	Independent-thinking, self-disciplined students who pursue subject for sake of learning
Fixed quota of students with high overall ability levels must be selected from group	Need to assess students' knowledge and capabilities, not status in comparison with one another	Variety of instructional resources available and teacher time sufficient to plan and supervise use of materials	Need to encourage students to explore fields outside their majors
High degree of selectivity required	Tasks must be performed at a fixed standard of competence	Necessity of remediating while educating	Students do not require grade rewards
	Public safety demands that certain tasks be performed only by fully qualified individuals		