What's in a Grade? Current Practices and Strategies to Evaluate Learning in Engineering Courses

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Abstract

Faculty traditionally have used a variety of individual and group-based learning activities including homework assignments, exams, projects, reflection papers, and presentations in an effort to promote, enhance, assess, and evaluate students' knowledge and learning. More current research has suggested modifications to some of the historic assessment methodologies and technological advances that have potentially influenced the use of various assessment approaches. The authors pose the following question in this paper: How are faculty currently evaluating student learning and encouraging student success in engineering courses?

This paper provides a summary of research into grading practices and then shares the results of a survey distributed nationally to engineering educators that investigated the grading policies and practices used in engineering courses to define the "state of practice." Analysis of survey results provides insights into the grading systems, weighting, type of assignments, and policies in use by engineering faculty to determine final grades in courses. In addition to identifying major course components used, i.e., homework, projects/papers, quizzes, and exams, the survey results were used to characterize policies and practices such as extra credit, bonus points, and more unique tools, adopted by faculty to encourage students to learn material. This paper characterizes deliverables, assessment tools, and weightings used to assign a grade in engineering courses and identifies contingency practices that faculty use to incentivize, encourage, and support student success.

Introduction

The purpose of this study is to identify the current state-of-the-practice in evaluating student learning in engineering and to identify additional practices used to support student learning on course deliverables. The authors' motivation to conduct this study came about from attending seminars and presentations, as well as through informal conversations with colleagues about different approaches used to promote student learning through various course deliverables.

Assessments, policies, and deliverable weightings can vary significantly among faculty and courses. Some faculty use traditional approaches such as basing the course grade on a combination of homework assignments, quizzes, and exams while other faculty have adopted practices such as contract-based grading and mastery-based grading where students are allowed multiple attempts to demonstrate attainment of learning objectives [1]. At some authors' universities, Florida Gulf Coast University and University of Minnesota Duluth, faculty are encouraged to move away from infrequent and high stakes graded assessments, often called the "two-midterms-and-a-final model" of evaluating student learning, for the purpose of increasing student success, retention, and graduation rates.

For some faculty, the COVID-19 pandemic and shift to remote learning necessitated using non-traditional approaches to help students learn while also addressing equity and access to course

materials. In some cases, the shift to remote learning accelerated the adoption of different assessment approaches. Some faculty who adopted different assessment methods and practices have continued to use different strategies even after returning to fully in-person classes, having refined their approach over the subsequent semesters. This paper provides a summary of research into grading practices and shares the results of a survey distributed nationally to engineering educators to investigate grading policies and practices used in engineering courses, to define the state of practice in grading, and to identify contingency practices or other approaches used by faculty to encourage student learning.

Background

A review of the literature revealed studies on grading practices in disciplines other than engineering and at the K-12 level, but a lack of studies on grading in the engineering disciplines. Nevertheless, common characteristics and important lessons were found in examining the literature on grading practices and using grading to develop students' skills.

Lipnevich et al. [2] reviewed syllabi from 250 introductory courses in English, math, science, and psychology and determined that instructors typically used approaches to grading that they experienced as students and that they think are fair. Allen [3] found that many instructors simply use what they experienced as students in determining grades in their own courses, regardless of the validity or lack of validity of these practices. Walstad and Miller [4] conducted a national survey to examine grading policies and practices in core economics courses. The authors found "that there is a wide variety of grading policies used in principal courses and substantial discretion in how economics professors determine grades" [4].

Walvoord and Anderson [5] identified the purposes of grading beyond just identifying the final course grade. The authors suggest that using effective grading approaches and strategies can help students acquire knowledge and skills, can motivate students to learn, and can be used by instructors to communicate to students the importance of different elements of the course and different skills developed. Kitsantas and Zimmerman [6] found that completing assignments supports students' achievement and their self-regulatory development by increasing students' belief in their capacity to succeed.

Walvoord and Anderson [5] also present the difference between developmental vs. unit-based grading approaches. In the developmental approach, work completed earlier in the semester or in early phases of an assignment are assigned a lower weight than the final submittal or, for example, a cumulative final exam. In the unit-based approach, each course component counts towards the final grade, typically in equal measure. Thus, in a unit-based grading system, early failures can affect the course grade more heavily than in a developmental grading system.
In practice, instructors use a variety of methods, often combining elements of different grading models. Different types of courses will likely require students to produce different types of work (e.g., solved problems in a foundational course in engineering mechanics vs. a design report and drawings in a project-based capstone course). Artés and Rahona found that requiring and grading problem sets increased student performance in their sample by almost an entire letter grade (eight percent) [8].

University students' grades are often determined based on the level of achievement on specific learning objectives as demonstrated through exams, assignments, and projects. Instructors may also consider attendance, participation, timeliness of submission, effort and behaviors [2]. Grading criteria seem to fall into three broad categories: product (what students know at a specific point in time), process (what students know and how they got there— turning in work punctually, participation, and attendance), and progress (how much students gain from learning) [7]. Of these three, it was found that process criteria were mainly used as a source of deductions (attendance, late penalties) and a progress criteria approach was uncommon [2].

Methods

The goals of this study were to characterize deliverables; to identify assessment and grading approaches used in engineering courses; to determine practices used to calculate the student's final grade; and to identify any other practices that faculty use to incentivize and support student learning as related to deliverables. The authors developed a survey asking respondents to identify their grading practices in one "typical" course (e.g., not a project-based capstone or lab-only class). Specific questions addressed the components that make up the final course grade, distribution of individual vs. group assignments, grading system used, late submittal policies, extra credit, and grading practices for accuracy and completeness. The survey also asked respondents to identify any practices used to encourage and support success such as redoing and resubmitting exams for additional credit, or other approaches specific to the instructor or the course (e.g., mastery-based learning).

Survey questions, shown in Appendix A, were generated in Qualtrics, and administered electronically with IRB approval. Requests for participation were posted on American Society of Civil Engineers (ASCE) Collaborate sites, sent via American Society for Engineering Education (ASEE) division emails, and distributed to colleagues and past participants of the ASCE ExCEEd Teaching Workshop. The estimated time required to complete the survey was 7-12 minutes. Over 225 responses were received. The number of responses to individual questions could be less than this total - even for completed surveys - depending on the grading practices used. For example, if an instructor indicated that they do not administer exams, then the survey tool would not ask further questions about exams.

Results

A majority (84%) of the courses for which information was provided were required (core) courses and a vast majority (>98%) were engineering courses. The level of the courses varied, with 18% classified as introductory courses, 34% as mid-level, 42% as upper-level and the remaining 7% as graduate or mixed level (approximately evenly split). Courses were predominantly taught in face-to-face mode (86%). Only 1% of courses were taught completely online and the remainder were classified as hybrid or other.

Respondents taught at a variety of institutions, as presented in Figure 1. Approximately a third of responses were from private institutions and the balance from public (both 2- and 4-year). A plurality of responses (46%) was received from Civil Engineering faculty; Electrical, Mechanical and Environmental Engineering faculty identified as an additional 8-10% each, and the

remaining responses included faculty from Architectural, Aerospace, Biomedical, Computer, Engineering Technology, and non-engineering disciplines.

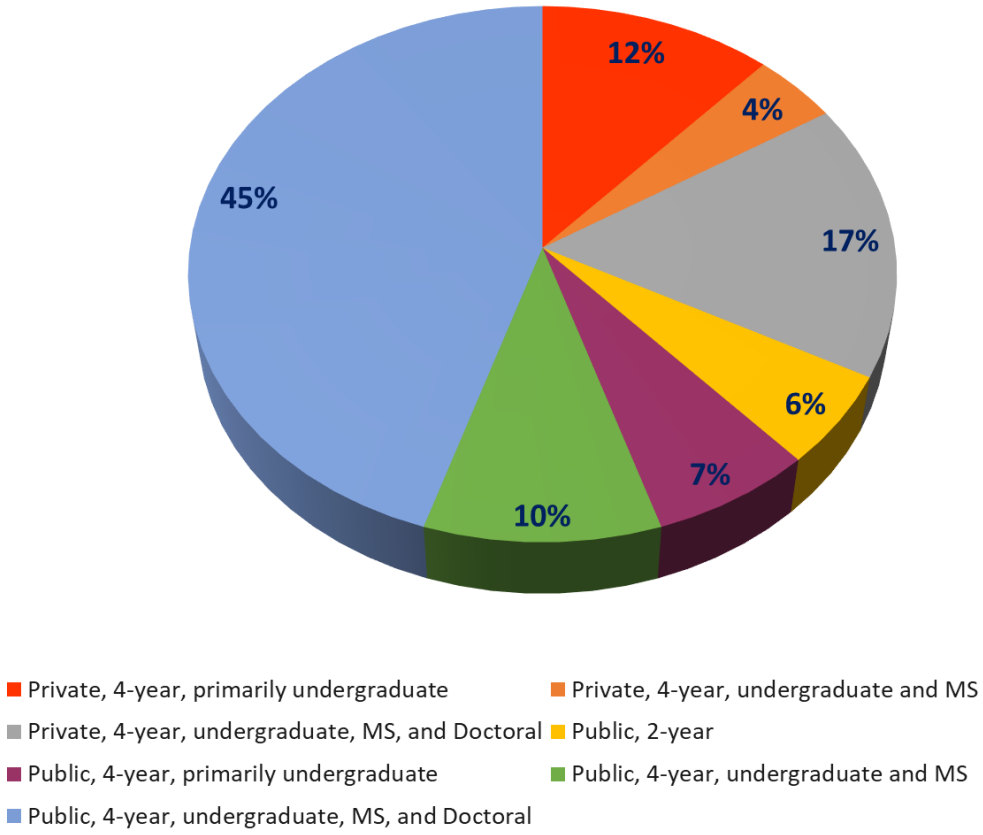

Figure 1: Distribution of institution type for survey responses

As shown in Figure 2, 8% of respondents had 6 or fewer years of teaching experience, while 22% had 7 to 12 years of experience, and the majority of respondents (55%) had more than 12 years of experience. The survey did not ask respondents for their academic rank because it was anticipated that some respondents may be adjunct or teaching professors with titles other than those used in the tenure track system. The survey results show that a significant portion of responses (77%) were from experienced faculty with 7 or more years of teaching experience.

Grading Systems

Participants were asked to classify their grading system into one of six categories. Category descriptions and the number and percent of responses that were received for each category are included in Table 1. More than half of those responding indicated that a percentage system was their method of choice, with a total point system being the next most used system. Descriptions from those who indicated "other" included mastery-based grading, weighted averages, labor-based, and ungraded. No trends were observed in the type (required, elective), level of course (e.g. introductory) or type of institution for the "other" grading systems.

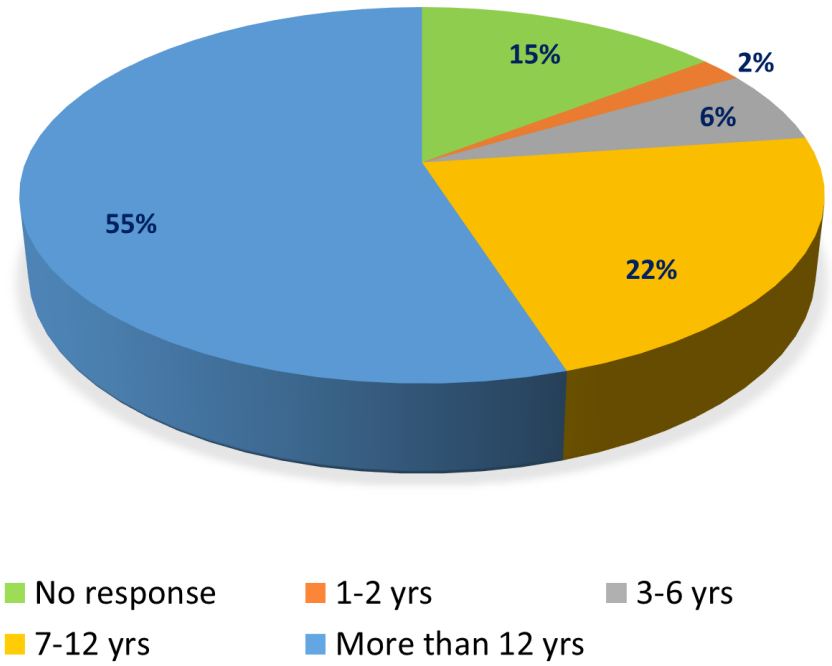

Figure 2: Years of experience of survey respondents

Components of Grading

The survey included ten broad categories as potential contributors to the overall grade in the course. In an effort to ensure consistency, brief definitions of each category were provided within the survey, as shown in Appendix A. Respondents were asked to indicate the percentage of the overall course grade allocated to each category. Relative use, ranges of contribution to the course, and mean, median, and mode for each category are summarized in Table 2.

Survey respondents identified Homework and Exams as the most common component utilized in the courses while class attendance was used least often. The range of contributions of any component to the overall course grade (assuming the component was included as a portion of the course) varied from a small percentage (e.g. 1 - 5%) to most of the course grade, with some components comprising almost 80% or more of the overall course grade. Twenty-two respondents reported using graded components not included as part of the survey. These included oral check-ins or discussion, team reviews, professional development, attending professional meetings, reflections, in-class activities, and field trips.

Table 1: Various Grading Systems and Number (Percent) of Responses for each ordered by greatest response (n = 171)

Grading System with description	Number (Percent) Utilizing
Percentage system: every assignment and assessment counts for a certain percentage of the final grade, and these are all scored on a 100% basis (e.g. a student may score up to 100 on an assignment that accounts for 25% of the final grade). Note: instructors may use letter grades with this system instead of numerical grades.	99 (58%)
Total point system: total points for each assignment add to a fixed number of points (e.g., 2000), with each assignment and assessment having a defined number of points.	24 (14%)
Open point system: allocates a specific number of points for each assignment. The number of points a student achieves throughout the course is then divided by the total number of points possible to get a percentage score.	15 (9%)
Other (please describe briefly)	14 (8%)
100-point system: all assignments and assessments are assigned points, and the sum of possible points on all the assignments total to 100.	10 (6%)
Multiple grading approaches for course (e.g. student chooses weights, different weight scheme (over / under emphasizing final for example) and giving higher result, or individualized grading plans.	9 (5%)

Participants were also asked to identify the portion of the overall course grade determined by individual assignments. Thirty-one percent stated that the entire course grade was based on individual contributions and another 42% indicated that individual contributions comprised 75 to 99% of the course grade. Less than 5% identified individual scores as contributing to less than half of the overall course grade.

Table 2: Components of Grading by category, use, and level of contribution to overall course grade (n = 172)

Course Component	Number (Percent) Utilizing	Range of Contribution to Course (%)	Mean Contribution (based only on those using)	Median Contribution (based only on those using)	Mode Contribution (based only on those using)
Attendance	26 (21%)	1 - 15%	6.3%	5%	5%
Class Participation	58 (34%)	1 - 30%	8%	5%	5%
Final Exam	141 (82%)	10 - 50%	22.7%	20%	20%
Midterm / Other Exams	142 (83%)	5 - 80%	34.8%	35%	20%
Quizzes	90 (52%)	2 - 60%	15.2%	10%	10%
Homework	148 (86%)	5 - 80%	19%	15%	20%
Individual Projects / Papers	46 (27%)	2.5 - 60%	19.8%	20%	10%
Group Projects / Papers	86 (50%)	2.5 - 70%	21.1%	20%	20%
Lab	46 (27%)	5 - 79%	21.9%	20%	20%
Other	22 (13%)	2 - 100%	20.7%	10%	5%

Homework

A large majority of survey respondents rely on homework as a learning and evaluation tool. As summarized in Table 2, 86% percent of the respondents indicated that assigned homework is a part of their course grade. Of those, homework contributions to the course grade ranged from 5% to 80% with the average being 19%. Looking deeper into the use of homework, Figure 3 shows the percentage of faculty that indicated they included each of the various types of questions in

their homework assignments. Problems were the most commonly used type of homework questions, with just under 94% reporting that they used problems in assignments. Very few (< 2%) included true/false questions. Figure 4 shows the grading weight of each of various types of questions, using average weights reported for a typical homework assignment. Based on these averages, 85% of a homework assignment grade would be allocated to problems. Multiple choice and true/false on average make up a much smaller percentage, with true/false only a tenth of a percent. The "other" type of problems were described as programming or online work. A few respondents assigned only short answers, only essays or long answers, or only problems for their homework assignments. In fact, over half (51%) indicated they only used problem-type homework assignments. When looking at how faculty reported grading homework assignments 86% indicated they provided feedback, 81% graded every problem, and 72% reported providing complete solutions. Only 16% of respondents graded based on completeness, and 19% graded on intermediate and final answers only. As might be expected, a larger percentage, 83%, graded on both completeness and accuracy. From our survey 57% indicated that teaching assistants graded their assignments. Interestingly only 1% assigned homework as optional, but 20% provided some or all of the assignments as extra credit. Slightly more than two-thirds (68%) allow late submission, and nearly one-third (32%) do not.

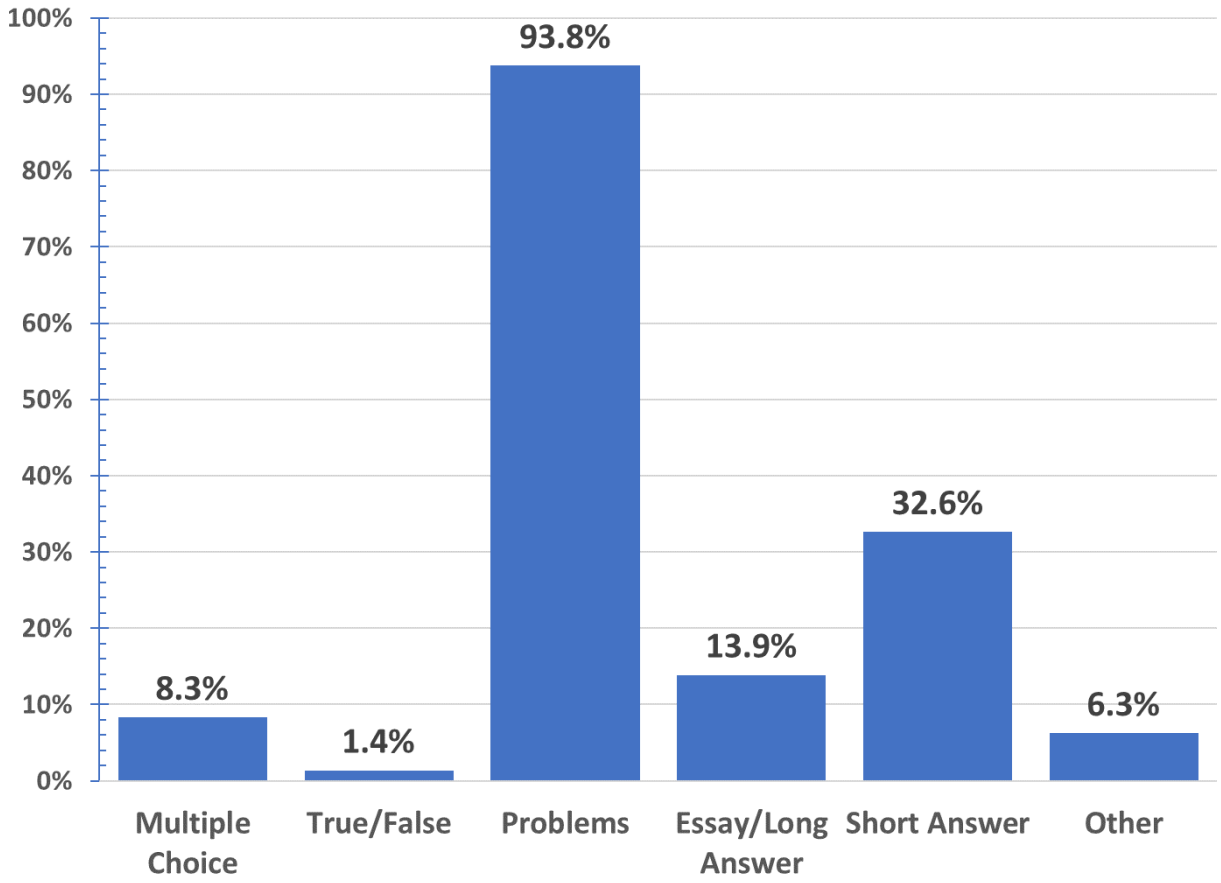

Figure 3: Faculty use of different types of questions on homework assignments

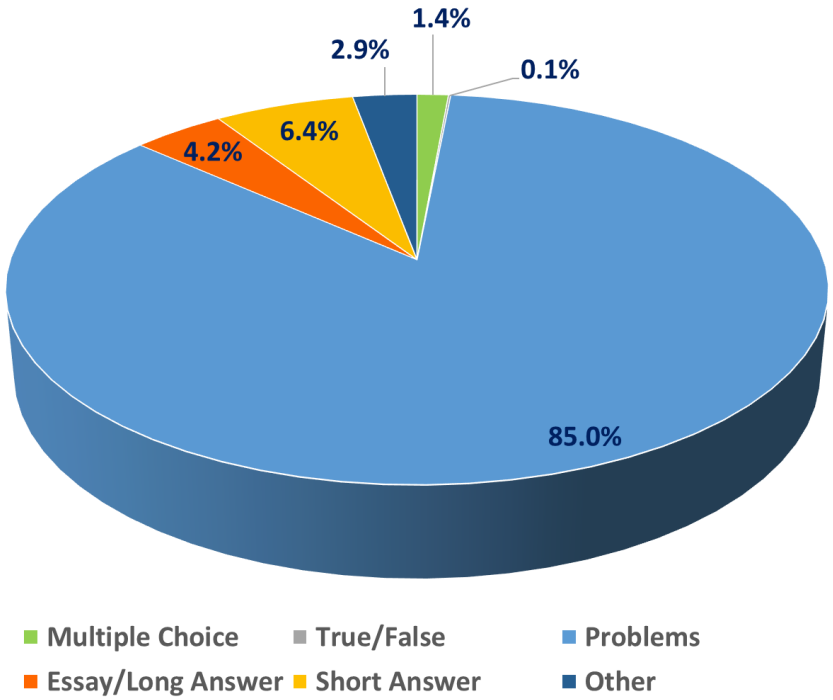

Figure 4: Weight of each type of question used in a typical homework assignment, based on averages

Projects and reports

As shown in Table 2, 50% of faculty indicated they used group projects or papers and 27% individual projects or papers in their courses. Faculty reported that roughly a quarter of the grade for these deliverables was based on writing, formatting, mechanics, style, etc. The other three quarters of the grade was based on the technical content. There was no significant difference in this breakdown between individual vs. group assignments.

Exams and quizzes

The survey asked several questions about exams and quizzes. Among respondents, 5% reported not using any exams or quizzes and instead used alternative assessment mechanisms such as specifications grading, group and individual projects, homework, and portfolios to evaluate students. Of those requiring a final exam, 82% of the final exams were in class, while 13% of the final exams were online. Ninety-three percent of respondents weighted midterm exams equally and 86% of midterm exams were in class. The average number of midterms was 2.4, with a median of 2, and a maximum of 6. Respondents who used quizzes reported using up to 52 quizzes in their courses, with an average and median of 10 and 8, respectively.

Table 3 shows the percentage of question types in the respondents' exams and quizzes. In both cases, numerical or graphical questions are the most common form of evaluation, followed by short answer and multiple choice.

Table 3. Percent of questions in exams and quizzes by question type.

Question Type	Final and Midterm Exams (%)	Quizzes (%)
Numerical or Graphical	67.6	49.3
Short Answer	10.8	14.9
Multiple Choice	9.8	26.3
Essay	6.5	2.9
True or False	1.8	4.7
Other	3.4	1.8

Approximately 50% of respondents allowed students to use references on final and midterm exams. Common references included textbooks, class notes, student-created note sheets, instructor-created note sheets, codes, the Fundamentals of Engineering Exam Reference Handbook, and the internet. Several responses included some variant of "closed classmate" or "anything except other people."

Other Grading Criteria

Twenty-three percent of respondents indicated that there is a component of their course required to pass the course beyond a certain grade. These components included a certain percent in one or more of the course components (i.e. 70% or greater in laboratory, 50% or greater on the project, etc.), turning in all assignments or all of a certain type of assignment, passing an individual graded event, and passing each graded portion.

Redoing, Resubmitting, Dropping, Retaking Options

From our survey 62% indicated that they allowed some form of resubmission, dropping a score, retaking a quiz or exam, or some other similar scheme. As seen in Figure 5, the most common option used by faculty was dropping a score or scores. Over a third of the faculty who reported "other" included a specific scheme, listed with policy variations or times when replacements, dropping or resubmitting could be used. A few schemes involved the redistribution of weighting in the course, allowing students, within limits, to determine the value of various exams or assignments or a lower score on exams being weighted less than higher scores. Others reported accepting online submissions where immediate feedback was provided and students could resubmit multiple times, presumably until students got the correct answer. Finally, one option described allowing a group to discuss the exam or quiz after an individual effort, then allowing students to replace or retake exams or quizzes individually.

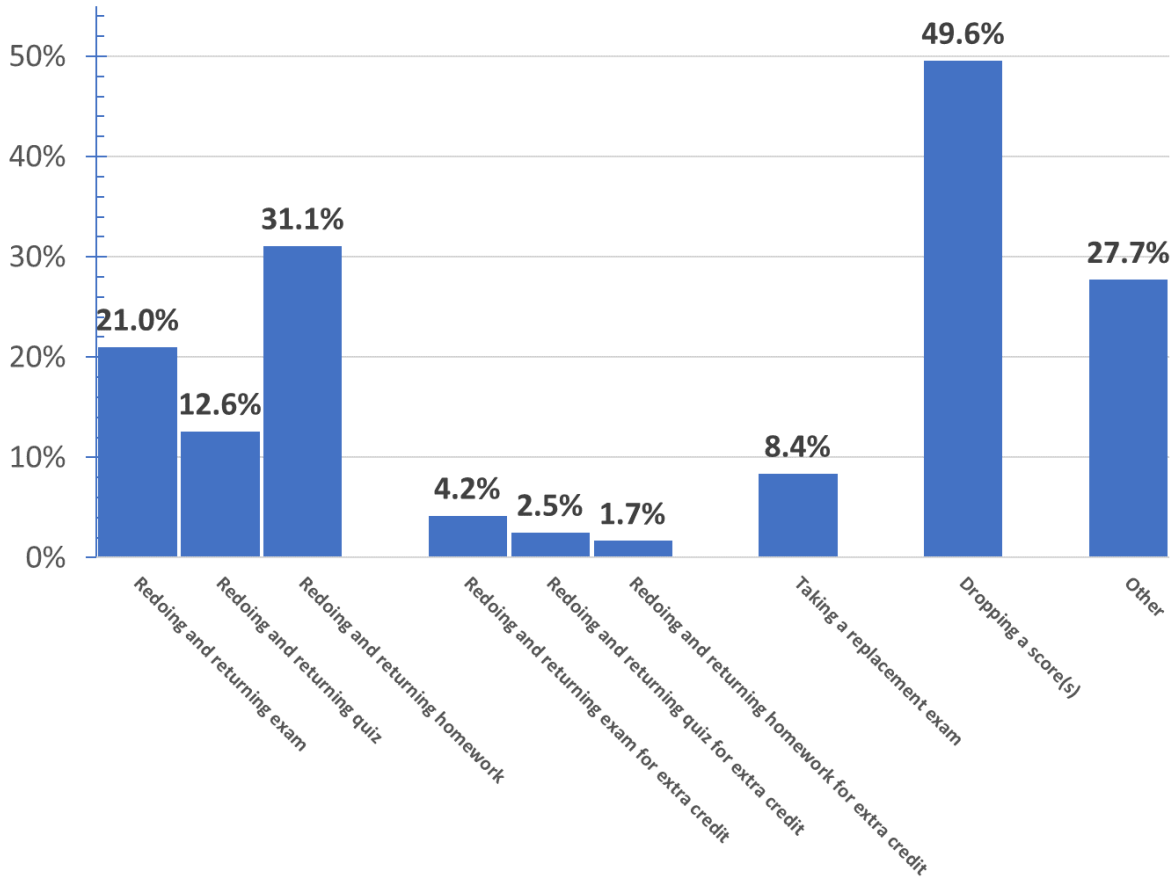

Figure 5: Use of redoing, replacing, retaking, or dropping for graded elements of a course.

Contingency and other practices to support student success

Survey participants were asked to identify any practices they use to incentivize, encourage, and support success, what were identified as "contingency" practices. Sixty-two unique comments were received and were arranged into four categories including: 1) offering extra credit and encouraging participation in and out of class, 2) practices to promote mastery of the material, 3) flexibility and creativity in assigning grades, and 4) strategies for managing teams. Some comments have been paraphrased for brevity and duplicate comments were combined or eliminated. Contingency practices include:

1) Offering extra credit to increase grades, promote engagement
   - Extra credit for writing goals every two weeks
   - 1% extra credit for completing 5 Professional Development Hours each semester
   - Extra credit for attending lectures given by outside speakers or attending student organization meetings
   - Extra credit for contributions in and out of class, active participation in class.
   - Extra credit for wearing Halloween costumes

2) Allowing students to redo and/or resubmit work to promote mastery
    - Retake exams to increase or replace a grade; Redo and resubmit an exam for up to 50% of points back or 25% of points back if work is done as part of a group; Very high expectations of professionalism on the resubmittal
    - Multiple attempts at weekly quiz, accept the highest score
    - Peer review prior to submission of new/unfamiliar work
    - Dual submission grading schemes that include a combination of initial submittal and redoing after feedback or after reviewing solutions
    - Posting videos and solutions of homework assignments that students can use as a guide when stuck
    - Include reflection with each assignment so students are continually assessing how to improve

3) Providing flexibility/creativity in grading practices
    - Dropping lowest scores on some deliverables (e.g., exam) if student submits all the homework
    - Accepting an optional last homework assignment to replace the grade on assignment with a lower score
    - Lower/higher weight associated with homework, depending on the course level
    - Labor based grading; grading based on completion. Student will pass the class if the required work is done and can earn a higher grade for additional work
    - Merciful grading on exams to make up for "bad day"
    - Completion-based grading, but all feedback must be addressed to be eligible for additional points
    - Grading homework as pass/fail based on a set of objective criteria and allowing students to redo and resubmit the work if any part is missing or incorrect.
    - Adjusting weights mid-semester to benefit the students
    - Different exam or assignment weighting used for each student to maximize the student's score
    - Minimum grade required in each portion of the course to pass the course
    - Assigning heavier weight to assignments and deliverables later in the semester when the student is more familiar with the course
    - Students choose among questions on exam
    - Team-based learning on quizzes and exams (in whole or in part)
    - Earned Points So Far (EPSF) approach that serves as a measure of the student’s learning progress relative to the course outcomes

4) Managing teams
    - Increasing the earned score for any team members who contribute more than their share of the team's work
    - 360 degree evaluations for team members to improve team work
    - Peer and industry advisor evaluation of team members' contributions.

Summary

This paper summarized the results of a survey to characterize deliverables, assessment tools, and weightings used to assign an overall course grade in engineering courses. Survey respondents also identified contingency practices used to incentivize, encourage, and support student success.

Survey results confirm the findings from prior studies showing that a majority of instructors use homework, exams, and projects to help students learn and to determine the course grade. Some instructors - a small fraction - use techniques such as a mastery-based approach to support learning and to determine course grades. Some instructors use flexible and creative contingency practices such as allowing students to redo and resubmit graded work to encourage and support student learning. The results of this study are useful for instructors considering how to incorporate effective means of evaluating student work.

Acknowledgements

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Appendix A - Survey Questions

Think about a specific course that you have taught recently. Please answer the following questions based on this single course. We ask that the course you think of be a "standard course" - required or elective undergraduate course with deliverables, e.g. not capstone, seminar, independent study, or lab only course.

What type of grading system do you use in your course? (see definitions)

- 100-point system, all assignments and assessments are assigned points, and the sum of possible points on all the assignments total to 100.
- Percentage system, every assignment and assessment counts for a certain percentage of the final grade, and these are all scored on a 100% basis (e.g. a student may score up to 100 on an assignment that accounts for 25% of the final grade). Note: instructors may use letter grades with this system instead of numerical grades.
- Total point system, total points for each assignment add to a fixed number of points (e.g., 2000), with each assignment and assessment having a defined number of points.
- Open point system allocates a specific number of points for each assignment. The number of points a student achieves throughout the course is then divided by the total number of points possible to get a percentage score.
- Multiple grading approaches for course (e.g. student chooses weights, different weight scheme (over / under emphasizing final for example) and giving higher result, or individualized grading plans.
- Other (please describe briefly)

What is the percentage of the grade allocated to different required course components (use definitions below)? (Note: the percentages should total 100--do not type % sign, just numbers). Enter 0 for a component if not a part of your course grade. NOTE: Please be as accurate as possible, but exact percentages are not necessary if you can provide a good "ballpark" number.

- Attendance
- Class participation (beyond just attending)
- Final exam - deliverable that is normally expected to be completed by an individual student at the end of the course, but may involve group work. Typically covers multiple modules of a course, often cumulative.
- Midterm(s)/Exam(s) - deliverable that is normally expected to be completed by an individual student, but may involve group work. Typically covers multiple lessons within a single module of a course.
- Quiz(zes)- deliverable that is normally expected to be completed by an individual student, but may involve group work. Typically covers only one or two lessons or a portion of a module of a course.
- Assigned Homework - deliverable that is expected to be completed (solo or in groups) out of class. Typically consists of several smaller problems focused on a singular course topic.
- Required (individual) Term Papers/Projects- deliverable that is expected to be completed individually out of class. Typically consists of multiple parts that focus on one or more course topics.
- Required (group) Term Papers/Projects- deliverable that is expected to be completed in groups out of class where students work together, and get a common grade based on the

group effort, possibly with minor adjustments. Typically consists of multiple parts that focus on one or more course topics.

Lab component - deliverable that typically has an in class component of testing, followed by an out of class completion (solo or in groups). Format may vary.

Other required assignments (please describe)

What portion of the grade in the course is for individual-based work (percentage 0-100)?

NOTE: The following questions were only asked if the respondent indicated they include this type of assessment or assignment in their courses.

Please identify deliverables included in individual grading

Final exam	Midterm(s)/exam(s)	Quizzes
Homework	Project(s)/paper(s)	Lab(s)
Other (please list)		

Please identify deliverables included in group work (students work together, get a common grade based on the group effort, possibly with minor adjustment)

Final exam	Midterm(s)/exam(s)	Quizzes
Homework	Project(s)/paper(s)	Lab(s)
Other (please list)		

Considering your final exam....

Is it cumulative (covering material from the entire course)?

Is it administered in class?

Is it taken on line (either in class or out of class)?

Do you allow references? Please list.

How many midterm(s)/exam(s) (other than the final exam) are administered in your course?

Considering your midterm(s)/exam(s) (Yes/No)

Is/are they weighted evenly?

Is/are they administered in class?

Is/are they taken on line (either in class or out of class)?

Do you allow references? Please list.

What is the percentage of the midterm/exam portion of the course grade that is allocated to each exam? (Note: percentages should total 100)." If not used enter a zero

Midterm/exam 1	Midterm/exam 2	Midterm/exam 3
Midterm/exam 4	Midterm/exam 5	Midterm/exam 6

For a typical (midterm or final) exam, what is the approximate percentage allocated to different types of questions? (Note: the percentages should total 100) Enter a 0 if not used.

Multiple choice	True or False	Short answer
Problems (numerical or graphical)	Essay or long answer	Other (briefly describe)

How many quizzes do you administer in your course?

For a typical quiz, what is the approximate percentage allocated to different types of questions? (Note: the percentages should total 100) Enter a 0 if not used.

Multiple choice	True or False	Short answer
Problems (numerical or graphical)	Essay or long answer	Other (briefly describe)

How do you award credit for attendance? Briefly explain

Provide an example of what would qualify for participation credit.

Considering an individual project or paper, what is the percentage is allocated to the following? (Note: the percentages should total 100).

Writing, formatting, mechanics, style, etc.	Technical content

Considering a group project or paper, what is the percentage is allocated to the following? (Note: the percentages should total 100).

Writing, formatting, mechanics, style, etc.	Technical content

Considering assigned homework - deliverable that is expected to be completed (solo or in groups) out of class. Typically consists of several smaller problems focused on a singular course topic.

Do you provide feedback/comments beyond the grade?
Do you grade every problem of the homework assigned?
Do you provide a complete solution?
Do you grade homework based only on completeness (steps, process, work being shown)?
Do you grade homework based only on accuracy (intermediate and final answers)?
Do you grade homework based on both completeness and accuracy?
Do you assign homework as a completely optional exercise?
Do you assign some or all of a homework assignment as extra credit?
Do you have a grader or TA to assist in grading?

For typical homework assignments, what is the approximate percentage allocated to different types of questions? (Note: the percentages should total 100) Enter a 0 if not used.

Multiple choice	True or False	Short answer
Problems (numerical or graphical)	Essay or long answer	Other (briefly describe)

Do you use any of the following (check all that apply):

Redoing and returning homework for partial or full credit
Redoing and returning quiz for partial or full credit
Redoing and returning exam for partial or full credit
Redoing and returning homework for extra credit
Redoing and returning quiz for extra credit
Redoing and returning exam for extra credit
Taking a replacement exam
Dropping a score(s)

Other comparable practices (please describe)

Do you allow late submissions?

Please briefly explain your late policy.

What percentage of the overall course grade could a student earn in each of the following?

Extra credit/bonus points for course related work (attending optional course events, projects, activities--homework, quizzes, etc.)

Extra credit/bonus points for activities that are not directly related to the content or subject of the course, (attending a professional development event, supporting a student food drive, wearing a Halloween costume to class, etc.)

Please describe any other unique, specialized, less common, and/or individualized grading options/schemes you include in your course (type "NA" if none).

Considering final grades…Does your school use traditional letter grades (A-F with or without +/-) ?

Yes No (please explain what is used)

What is the lower limit for each grade used, A+ to F- (enter as a percentage with up to 2 decimal places, i.e. B+- 86.67; enter a **-1** for the lower limit if you do not use that particular grade)

A+ A A- B+ B B- C+ C C- D+ D D- F F-

Do you have flexibility with your grading?

Yes, it is completely at my discretion

No, my institution has defined grading standards or sets specific grade requirements (briefly explain)

Do you adjust final course grades that are on the margin (e.g. adjusting a 89.3% to an A-, etc.)?

Yes No Other (please explain)

Do you grade on a curve to establish final grades (grading on a curve refers to the process of adjusting student grades in order to ensure that grades have a desired, often normal, distribution throughout the class)?

Yes No Other (please explain)

Do you establish requirements, beyond the final grade, to pass the course (e.g. must have passing exam average, must pass lab portion, etc.)?

Yes (please explain) No

What level is this course?

Introductory level (freshman/sophomore level) Mid-level (sophomore/junior level)

Upper level (junior/senior level) Mixed undergraduate-graduate level

Graduate level

Is this course a(n).....

Required course (everyone in the major, program, or institution must take it)
Selected elective (students must take it or other options from a list of courses)
Elective course (student has complete discretion to take it)

How is this course taught?

As a semester course As quarter course

How many sessions does it meet during the term? (enter a number, enter 0 if not part of the course)

Classroom lessons Lab sessions Recitations Other (please explain)

How many minutes for each session? (enter number of minutes, enter 0 if not part of the course)

Classroom lessons Lab sessions Recitations Other (please explain)

How many students are typically enrolled in a section of this course?

Less than 20 20 to 30 31 to 50 51 to 75 76 to 100 Greater than 100

How many times have you taught this course, including this term if applicable?

1 to 2 3 to 5 6 to 10 More than 10

How is this course typically taught?

Face-to-face only Online only Hybrid (some lessons face-to-face and some online)
Other (please describe)

How would you classify your College or University?

Public, 4-year, undergraduate, MS, and Doctoral
Public, 4-year, undergraduate and MS
Public, 4-year, primarily undergraduate
Public, 2-year
Other (please describe)
Private, 4-year, undergraduate, MS, and Doctoral
Private, 4-year, undergraduate and MS
Private, 4-year, primarily undergraduate
Private, 2-year

How many years have you been teaching?

1-2 3-6 7-12 More than 12

What is your primary discipline?

Architectural Engineering	Biomedical Engineering	Chemical Engineering
Civil Engineering	Computer Engineering	Electrical Engineering
Engineering Management	Engineering Technology	Environmental Engineering
Industrial/Systems Engineering	Interdisciplinary Engineering	Mechanical Engineering
Other Engineering	Non-engineering	

Have you attended any of the following (check all that apply)?

ASCE ExCEEd Teaching Workshop
ASCE ExCEEd II Teaching Workshop
NETI (I, II, or III) Workshop
KEEN Workshop
Other workshops focused on teaching pedagogy (please describe)
None