Mathematics Department
Undergraduate Grading Standards
November 2011

There are two important issues that this grading policy recognizes.

(1) Mathematics is hierarchical. A student who is given a grade of C or higher in a course must have mastery of that material that allows the possibility of succeeding in courses for which that course is a prerequisite.

(2) Some mathematics courses are primarily concerned with techniques and applications. In such courses student success is measured by the student's ability to model*, successfully apply the relevant technique, and bring the calculation to a correct conclusion. The department's 100-level courses and most calculus courses are examples in this category although these are not the only examples.

Other courses are primarily concerned with theoretical structures and proof. In such courses student success is measured by the student's ability to apply the theorems and definitions in the subject, and to create proofs on his or her own using the models and ideas taught during the course.

Many courses are partly hybrids incorporating both techniques and applications, and some element of theory. Some lean more toward applications, others more toward theory.

Rubric for applied courses:

A: Consistently chooses appropriate models, uses correct techniques, and carries calculations through to a correct answer. Able to estimate error when appropriate, and able to recognize conditions needed to apply models as appropriate.

B: Usually chooses appropriate models and uses correct techniques, and makes few calculational errors. Able to estimate error when prompted, and able to recognize conditions needed to apply models when prompted.

C: Makes calculations correctly or substantially correctly, but requires guidance on choosing models and technique. Able to estimate error when prompted and able to recognize conditions needed to apply models when prompted.

D: Makes calculations correctly or substantially correctly, but unable to do modeling.

F: Can neither choose appropriate models, or techniques, nor carry through calculations.

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*Modeling, in mathematical education parlance, means the process of taking a problem which is not expressed mathematically and expressing it mathematically (typically as an equation or a set of equations). This is usually followed by solving the relevant equation or equations and interpreting the answer in terms of the original problem.

Rubric for pure courses:

    A: Correctly states important theorems and definitions. Applies the important theorems from the course. Constructs counterexamples when hypotheses are weakened. Constructs complete and coherent proofs using the definitions, ideas and theorems from the course. Applies ideas from the course to construct proofs that the student has not seen before.

    B: Correctly states important theorems and definitions. Applies the important theorems from the course. Constructs counterexamples when hypotheses are weakened. Constructs complete and coherent proofs using the definitions, ideas and theorems from the course.

    C: Correctly states important theorems and definitions. Applies the important theorems from the course when the application is direct. Constructs simple proofs using the definitions when there are very few steps between the definitions and the conclusions. Explains the most important counterexamples.

    D: Can do some single step proofs and explain some counterexamples.

    F: Unable to do even single step proofs or correctly use definitions.

Many courses combine pure and applied elements and the rubrics for those courses will have some combination of elements from the two rubrics above. Detailed interpretation of the rubrics depends on the content and level of the course and will be at the discretion of instructors.

Whether to award grades of A+ is at the discretion of the instructor. If an instructor chooses to award A+s, such a grade indicates that the student has consistently demonstrated a level of understanding above and beyond the normal requirements of the course.