

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Editorial Board

1968	1969
ROBERT L. BOWMAN	EMIL HAURY
JOSEPH W. CHAMBERLAIN	WILLARD F. LIBBY
JOHN T. EDSALL	EVERETT I. MENDELSON
ALEXANDER HOLLAENDER	JOHN R. PIERCE
GORDON J. F. MACDONALD	KENNETH S. PITZER
NEAL E. MILLER	ALEXANDER RICH
DE WITT STETTEN, JR.	CLARENCE M. ZENER

1970

GUSTAF O. ARRHENIUS	RICHARD C. LEWONTIN
FRED R. EGGAN	ALFRED O. C. NIER
HARRY F. HARLOW	FRANK W. PUTNAM
MILTON HARRIS	

Editorial Staff

Editor

PHILIP H. ABELSON

Publisher
DAEL WOLFLE

Business Manager
HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

Assistant Editors: ELLEN E. MURPHY, JOHN E. RINGLE

Assistant to the Editor: NANCY TEIMOURIAN

News Editor: JOHN WALSH

Foreign Editor: DANIEL S. GREENBERG*

News and Comment: LUTHER J. CARTER, BRYCE NELSON, PHILIP M. BOFFEY, MARTI MUELLER, ANN H. LARUS

Book Reviews: SYLVIA EBERHART

Editorial Assistants: SUSAN AXELRAD, JOANNE BELK, ISABELLA BOULDIN, ELEANORE BUTZ, HELEN CARTER, GRAYCE FINGER, NANCY HAMILTON, OLIVER HEATWOLE, ANNE HOLDSWORTH, ELEANOR JOHNSON, PAULA LECKY, KATHERINE LIVINGSTON, LEAH RYAN, LOIS SCHMITT, BARBARA SHEFFER, YA LI SWIGART, ALICE THEILE

* *European Office:* 22 Mulberry Walk, London, S.W. 3, England (Telephone: 352-9749)

Advertising Staff

Director
EARL J. SCHERAGO

Production Manager
KAY GOLDSTEIN

Advertising Sales Manager: RICHARD L. CHARLES

Sales: New York, N.Y., 11 W. 42 St. (212-PE-6-1858), ROBERT S. BUGBEE; Scotch Plains, N.J., 12 Unami Lane (201-889-4873), C. RICHARD CALLIS; Medfield, Mass. 02052, 4 Rolling Lane (617-359-2370), RICHARD M. EZEQUELLE; Chicago, Ill. 60611, 919 N. Michigan Ave., Room 426 (312-DE-7-4973), HERBERT L. BURKLUND; Los Angeles 45, Calif., 8255 Beverly Blvd. (213-653-9817), WINN NANCE.

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page 1709, *Science*, 29 December 1967. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

Are Grades Necessary?

College grades and grading systems have become targets of criticism for several reasons. Before the rules concerning student deferment were changed earlier this year, some students objected to the release of grades to draft boards. Grades have symbolized objective examinations, machine records, and other efficient devices and practices that critics have sometimes indicted as evidence of the dehumanization and regimentation of higher education. And students have objected to having permanent grade records given by instructors from whom they feel alienated for courses they consider irrelevant.

There is irony in this situation. Students sometimes complain of the impersonality of undergraduate instruction, and often justly so. Yet in the impersonality of language laboratories, computer-assisted instruction, and other "teaching stations" that provide the student with a range of instructional material and with rapid feedback to his responses is to be found the best hope of achieving the maximum individualization of instruction—an educational objective that would permit students to decide what and when they want to learn and would permit each to progress at his own self-determined rate. Under such conditions—in theory, although never completely in practice—each student (given the time he needed) could master each course he took. What then would course grades mean?

There is a further irony, for many instructors are also skeptical of the grading system. That grading standards vary widely among institutions, departments, and instructors is generally known; a student's grade in a particular course is at best an imperfect measure of what he knows of the course content. When college grades are used to predict success in later life, the correlations usually turn out to be too close to zero to be of much practical use. The scores received by graduating students on tests of the Graduate Record Examination, whether in the humanities, the natural sciences, or the social sciences, appear to be nearly independent of available measures of university or college quality or excellence, after account is taken of differences among students at the time of college admission (Alexander Astin, *Science*, 16 August 1968).

In short, a student's accomplishment in college and later is primarily determined by his own ability, knowledge, and motivation, and at best only slightly by the characteristics of his teachers and his college. This state of affairs is no excuse for abandoning efforts to improve teaching and educational facilities. But it does mean that instructors can be more relaxed about the necessity of assigning grades; that students cannot escape responsibility by explaining their own deficiencies in terms of instructor or college inadequacies; and that students can therefore be given substantial responsibility for deciding whether they are to be graded.

The practice of allowing students to take some courses without credit or without grades is spreading. The practice is not one to be made universal and mandatory, for grades provide some students with standards for self-appraisal and for motivation, and they provide the institution with comparative information concerning students. But educational effectiveness and the ability to make institutional decisions concerning the earning of college degrees do not require that grades be given to all students in all courses. A student has wide latitude in deciding which courses to take, how assiduously to apply himself, and how long to remain in a course or in college. Why should he not also be permitted to decide whether he is to be graded, and even whether he is to receive a certificate of enrollment for a specified period of time instead of a grade record and a degree?—DAEL WOLFLE

Science

Are Grades Necessary?

Dael Wolfle

Science **161** (3847), 1203.
DOI: 10.1126/science.161.3847.1203

ARTICLE TOOLS <http://science.sciencemag.org/content/161/3847/1203.citation>

PERMISSIONS <http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 1968 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.