NATIONAL CENTER FOR EDUCATION STATISTICS

Working Paper Series

The Working Paper Series was initiated to promote the sharing of the valuable work experience and knowledge reflected in these preliminary reports. These reports are viewed as works in progress, and have not undergone a rigorous review for consistency with NCES Statistical Standards prior to inclusion in the Working Paper Series.

U. S. Department of Education
Institute of Education Sciences

This page intentionally left blank.

NATIONAL CENTER FOR EDUCATION STATISTICS

Working Paper Series

ENGLISH COURSETAKING AND THE NELS:88 TRANSCRIPT DATA

Working Paper No. 2003-02 January 2003

Contact: Jeffrey Owings
Elementary/Secondary and Libraries Division
Jeffrey.Owings@ed.gov

U. S. Department of Education
Institute of Education Sciences

U.S. Department of Education
Rod Paige
Secretary

Institute of Education Sciences
Grover J. Whitehurst
Director

National Center for Education Statistics
Valena Plisko
Associate Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to:

National Center for Education Statistics
Institute of Education Sciences
U.S. Department of Education
1990 K Street NW
Washington, DC 20006–5651

January 2003

The NCES World Wide Web Home Page address is *http://nces.ed.gov*
The NCES World Wide Web Electronic Catalog is: *http://nces.ed.gov/pubsearch*

Suggested Citation

U.S. Department of Education, National Center for Education Statistics. *English Coursetaking and the NELS:88 Transcript Data,* NCES 2003–02, by David T. Burkam. Project Officer: Jeffrey Owings. Washington, DC: 2003

For ordering information on this report, write:

U.S. Department of Education
ED Pubs
P.O. Box 1398
Jessup, MD 20794–1398

Or call toll free 1–877–4ED–Pubs

Content Contact:
Jeffrey Owings
(202) 502–7423
Jeffrey.Owings@ed.gov

Foreword

In addition to official NCES publications, NCES staff and individuals commissioned by NCES produce preliminary research reports that include analyses of survey results, and presentations of technical, methodological, and statistical evaluation issues.

The ***Working Paper Series*** was initiated to promote the sharing of the valuable work experience and knowledge reflected in these preliminary reports. These reports are viewed as works in progress, and have not undergone a rigorous review for consistency with NCES Statistical Standards prior to inclusion in the Working Paper Series.

Copies of Working Papers can be downloaded as pdf files from the NCES Electronic Catalog (*http://nces.ed.gov/pubsearch/*), or contact Sheilah Jupiter at (202) 502–7444, e-mail: *sheilah_jupiter@ed.gov*, or mail: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 1990 K Street NW, Room 9048, Washington, DC 20006.

Marilyn M. Seastrom
Chief Mathematical Statistician
Statistical Standards Program

Ralph Lee
Mathematical Statistician
Statistical Standards Program

This page intentionally left blank.

English Coursetaking and the NELS:88 Transcript Data

Prepared by:

David T. Burkam
The University of Michigan

Prepared for:

U.S. Department of Education
Institute of Education Statistics
National Center for Education Statistics

January 2003

This page intentionally left blank.

TABLE OF CONTENTS

OVERVIEW

This report describes the ongoing efforts to create and test variables measuring students' high-school coursetaking in mathematics, foreign language, science, and English using data from the NELS:88 transcript file. The first project (exploring mathematics, NCES project No. 1.2.4.13, co-investigated by Valerie Lee and Becky Smerdon) was completed in September, 1996. The second project (exploring foreign language and science coursetaking, NCES Project no. 1.2.4.39, co-investigated by Valerie Lee) was completed in December, 1997. Reports and data from earlier work are available from Jeffrey Owings at NCES. This third project focuses on English coursetaking and is the subject of the current report.

The main goal of all of these projects has been to construct measures of coursetaking behavior that extend the historical approach of simply counting credits. Because the level and rigor of coursework is often ignored in measures of credits completed, the effort in these projects has been to create "pipeline" measures, measures that in some fashion capture the breadth and depth of the student's coursetaking. The mathematics pipeline—an indication of the highest level math course completed—was an eight-level variable ranging from "no math" to "calculus." The science pipeline—also an indication of the highest level science course completed—was a seven-level variable ranging from "no science" to "Chemistry 1 AND Physics 1" and "Chemistry 2 OR Physics 2" (see previous reports for further details).

English coursework, far less sequential in nature than either mathematics or science, posed particular challenges for the construction of a pipeline measure. Indeed, the final measure described here, departs somewhat from the "pipeline" concept. Rather, the constructed English measure is more correctly a "course quality index," the logic of which will be described in this report. The Appendix includes SPSS programs used to generate all the described measures.

EXPLORING THE ENGLISH CURRICULUM

Getting Started—Creating the Individual Course Measures

The first step in the construction of any English coursetaking measures is to create the course-specific English measures (credits earned, grades received, when completed) for all the "Letters" courses on the NELS file. This includes 112 specific courses, based on the CSSC codes (and excludes the three 7th and 8th grade General English courses listed in the transcript file). Nearly every NELS student represented in the transcript file (n = 17,285) has some information available concerning English courses (n = 17,188 or 99.4%).

Only 23 of the 112 courses enroll more than 2% of the transcript sample. Furthermore, only four enroll more than 15% of the sample. These four are the grade-specific, *average-level* General English courses. The grade-specific, *honors-level* General English courses each enroll between 10-13%, and the grade-specific, *below grade-level* General English courses each enroll between 3-7% of the sample. The remaining "high enrollment" courses include such courses as Composition (12%), American Literature (12%), Speech (11%), Public Speaking (7%), and British Literature (6%). See Table 1 for a complete listing of these 23 courses.

The entire list of English courses may be organized into six sub-categories:

(1) *General English* [including the grade-specific, general courses, organized by ability-level or track];

(2) *Literature* [including general, American, British, World, etc.];

(3) *Composition* [including general writing and grammar courses];

(4) *Speech/Communication* [including speech and public speaking];

(5) *Developmental/Functional English* [including various language arts courses]; and

(6) *Other* [including technical writing, rhetoric, and linguistics].

Table 2 presents all of the English courses by sub-category, and the percent of students who complete coursework under that CSSC code.

Table 1.—English Courses and the Proportion of Students in the Transcript File Completing the Course—Courses Enrolling Three Percent or More of the Transcript Sample [Percents based on the 17,188 students with some available information on English courses].

ENGLISH 9, AVERAGE	.74
ENGLISH 10, AVERAGE	.67
ENGLISH 11, AVERAGE	.53
ENGLISH 12, AVERAGE	.42
ENGLISH 12, HONORS	.13
ENGLISH 10, HONORS	.12
COMPOSITION	.12
AM LIT	.12
ENGLISH 11, HONORS	.11
SPEECH 1	.11
ENGLISH 9, HONORS	.10
ENGLISH 9, BELOW	.07
PUBLIC SPEAKING	.07
READING DEV 1	.07
BRIT LIT	.06
ENGLISH 10, BELOW	.05
WRITING LAB	.05
WORLD LIT	.05
ENGLISH 11, BELOW	.04
CREATIVE WRITING 10	.04
ENGLISH 12, BELOW	.03
CONTEMP LIT	.03
ADV READING	.03

Table 2.—English Courses and the Proportion of Students in the Transcript File Completing the Course—All Courses, Organized by Sub-Category.

GENERAL ENGLISH (GRADE-LEVEL SPECIFIC)	
ENGLISH 9, BELOW	.07
ENGLISH 9, AVERAGE	.74
ENGLISH 9, HONORS	.10
ENGLISH 10, BELOW	.05
ENGLISH 10, AVERAGE	.67
ENGLISH 10, HONORS	.12
ENGLISH 11, BELOW	.04
ENGLISH 11, AVERAGE	.53
ENGLISH 11, HONORS	.11
ENGLISH 12, BELOW	.03
ENGLISH 12, AVERAGE	.42
ENGLISH 12, HONORS	.13

COMPOSITION/WRITING	
COMPOSITION	.12
WRITING LAB	.05
WRITING ABOUT LIT	.01
VOCABULARY	.01
SPELLING	<.01
COMPOSITION, OTHER	<.01
GRAMMAR 9	<.01
GRAMMAR 10	.01
GRAMMAR 11	.01
GRAMMAR 12	.02
CREATIVE WRITING 10	.04
CREATIVE WRITING 11	.01
CREATIVE WRITING 12	.01
CREATIVE WR, OTHER	<.01
CREATIVE WR, IND STUD	<.01
ETYMOLOGY	<.01
HANDWRITING	<.01
INTERPERSONAL COMM	.01
WORD STUDY, REMEDIAL	<.01

DEVELOPMENTAL/FUNCTIONAL ENGLISH	
READING DEV 1	.07
READING DEV 2	.02
READING DEV 3	.01
READING DEV 4	<.01
SPEED READING	<.01
ADV READING	.03
FUNCTIONAL ENGL 1	.02
FUNCTIONAL ENGL 2	.02
FUNCTIONAL ENGL 3	.01
FUNCTIONAL ENGL 4	.01

SPEECH/COMMUNICATION	
SPEECH 1	.11
SPEECH 2	.02
SPEECH 3	<.01
PUBLIC SPEAKING	.07
DEBATE	<.01
SPEECH OTHER	<.01

OTHER	
TECHNICAL ENGL	<.01
TECH & BUS, OTHER	<.01
RHETORIC, OTHER	<.01
LINGUISTICS	<.01
LETTERS, OTHER	<.01
GENERAL, OTHER	<.01

Table 2.—English Courses and the Proportion of Students in the Transcript File Completing the Course—All Courses, Organized by Sub-Category.—Continued

LITERATURE (GENERAL, AMERICAN, BRITISH)

WORLD LIT	.05	AM LIT	.12
RENN LIT	<.01	BLACK LIT	<.01
ROMANTICISM	<.01	AMERICAN DREAM	<.01
REALISM	<.01	INDIAN LIT	<.01
CONTEMP LIT	.03	STATE WRITERS	<.01
IRISH LIT	<.01	WESTERN LIT	<.01
RUSS LIT	<.01	MEX-AM LIT	<.01
BIBLE AS LIT	.01	AM LIT, OTHER	<.01
MYTH & FABLE	.01		
DRAMA INTRO	.02	BRIT LIT	.06
WORLD DRAMA	<.01	SHAKESPEARE	.01
PLAYS MODERN	<.01	MODERN BRIT WRITERS	<.01
NOVELS	.01	MODERN BRIT SATIRE	<.01
SHORT STORIES	.02	ARTHURIAN LEGEND	<.01
MYSTERIES	<.01	MEDIEVAL LIT	<.01
POETRY	.01	BRIT LIT, OTHER	<.01
ROCK POETRY	<.01		
HUMOR	<.01	COMP LIT	.01
BIOGRAPHY	<.01	LATIN AM AUTHORS	<.01
NON-FICTION	<.01	COMP LIT, OTHER	<.01
SCIENCE FICTION	.01		
THEMES IN LIT	.02		
LIT OF HUMAN VALUES	<.01		
ETHNIC LIT	<.01		
WOMEN IN LIT	<.01		
SPORTS IN LIT	<.01		
OCCULT LIT	<.01		
PROTEST LIT	<.01		
YOUTH & LIT	<.01		
HEROES	<.01		
UTOPIAS	<.01		
DEATH	<.01		
NOBEL PRIZE WINNERS	<.01		
AUTHOR SEMINAR	<.01		
REAL-LIFE PROB SOLV	<.01		
INDEPT STUDY	<.01		
RESEARCH TECH	.02		
CHILD LIT	<.01		
VOCAT LIT	<.01		
CLASSIC MYTH	.01		
CLASSICS OTHER	<.01		

INITIAL EXPLORATIONS FOR AN ENGLISH PIPELINE MEASURE

Focusing on the General, Grade-Level English Courses

As suggested by the information in Tables 1 and 2, a substantial proportion of the NELS students complete all or the majority of their English credits within a general, grade-level-specific curriculum: 9th grade General English, 10th grade General English, etc. The CSSC codes distinguish between three levels, or tracks, at each grade: below grade-level, average grade-level, and honors grade-level (note—AP English is subsumed under 12th-grade Honors English). In an initial attempt to construct a framework for a potential English pipeline measure—the highest level of English coursework completed—I restricted my attention to these general courses.

Forming a Framework for an English Pipeline Measure

Only 5% of the students in the NELS transcript sample with information concerning English courses (as mentioned earlier, 17,188 out of 17,285) complete *no* General English Courses. The other 95% complete at least one General English course. Consequently, the first step toward an English pipeline measure is to classify students according to the level of the highest General English course completed. At worst, this preliminary pipeline measure will underestimate a student's progress since it will omit many traditional 11th and 12th grade English courses that are not classified as General English (e.g., American and British Literature).

It is important to remember that some students do "jump" tracks, either switching tracks mid-year, or switching tracks at the beginning of a new year. This preliminary General English pipeline measure reflects two features of students' English coursetaking: (1) the highest grade-level course completed (i.e., 10th grade, 12th grade, etc.); and (2) the highest "track" within that highest grade-level completed. The focus here is on the highest course completed, first by grade-level then by track within grade level.

By means of an illustration, Figure 1 provides the complete General English coursetaking history for the 2271 students classified as stopping with 11th-grade, *average-level* General English. While over 75% of these students complete 11th-, 10th-, and 9th-grade General English (1731 out of 2271), the remaining students display a wide variety of English coursetaking histories. These include a mixture of below-level, average-level and honors-level courses at the 9th and 10th grades.

Figure 2 summarizes a preliminary 13-level pipeline measure. The most notable feature of the pipeline occurs at the high end: over 13% of students reach the highest point of the General English pipeline

(advanced or honors 12th-grade English), and over 40% reach the second-highest point of the pipeline (average-level 12th-grade English). Consequently, nearly 55% of the sample are already included in the top two levels of the preliminary pipeline.

Even when restricting to these General English courses (that is, ignoring all other English coursework), very few students appear to "stop" at a below-grade-level course (only 6% of the sample stopped at the 9th, 10th, 11th, or 12th grade below-grade-level course). Even fewer students "stop" at an honors grade-level other than the 12th grade (only 3% of the sample stopped at the 9th, 10th, or 11th grade honors course). It may be the case that all of these students would be reassigned to different categories once additional English coursework is considered.

Two important observations should be stressed: (1) many of the students who are located at the low end of this preliminary pipeline will move up, once other (non-General) coursework is incorporated into the pipeline; and (2) there may be no meaningful way to further distinguish the students in the top two categories. Consequently, this suggests that any final English pipeline measure is likely to be considerably shorter than the Math and Science pipelines (which were 8 and 7 levels, respectively). Given the four-year English requirements in most high schools, this left-skewed pattern of English coursetaking is not surprising.

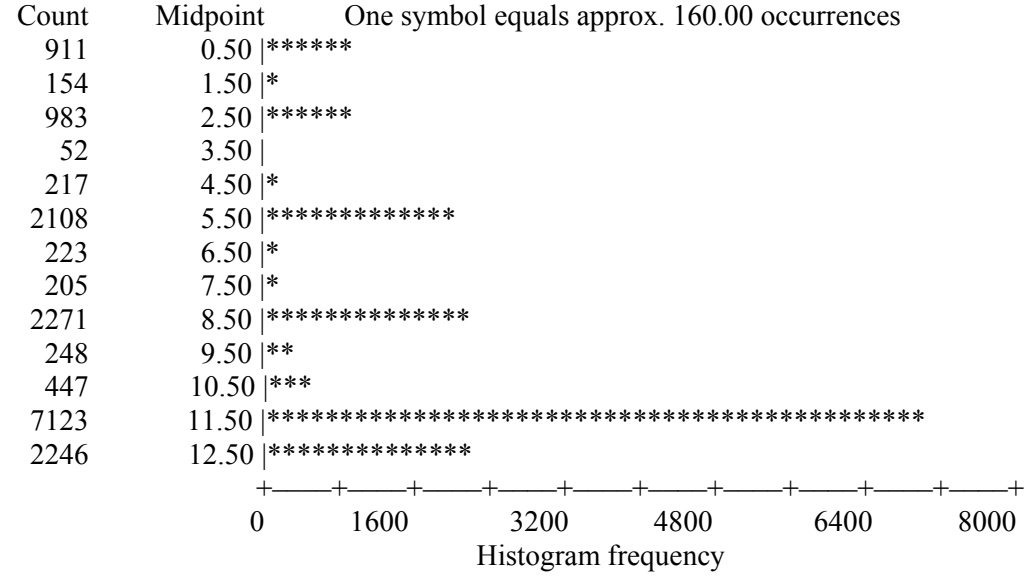
Figure 1.—English Coursetaking History, Students Who Completed 11th-Grade Average-Level Coursework (and No Higher).

		General English Coursetaking History								
		11th Grade			10th Grade			9th Grade		
Code	Count	Bel	Ave	Hon	Bel	Ave	Hon	Bel	Ave	Hon
300	47		X							
301	7		X					X		
303	98		X						X	
304	3		X					X	X	
305	2		X							X
308	1		X					X		X
310	7		X		X					
311	29		X		X			X		
313	15		X		X				X	
314	3		X		X			X	X	
316	1		X		X			X		X
330	118		X			X				
331	55		X			X		X		
333	1731		X			X			X	
334	12		X			X		X	X	
335	25		X			X				X
338	4		X			X			X	X
340	1		X		X	X				
341	3		X		X	X		X		
343	22		X		X	X			X	
345	1		X		X	X				X
353	28		X			X			X	
355	29		X			X				X
361	1		X		X	X		X		
363	1		X		X	X			X	
383	13		X		X	X			X	
385	3		X		X	X				X
411	1	X	X		X			X		
433	8	X	X		X				X	
434	2	X	X		X			X	X	

X = Completed coursework at this level

Figure 2.—Highest General English Course Completed (unweighted)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
none	.00	911	5.3	5.3	5.3
9th, below	1.00	154	.9	.9	6.2
9th, ave	2.00	983	5.7	5.7	11.9
9th, honors	3.00	52	.3	.3	12.2
10th, below	4.00	217	1.3	1.3	13.5
10th, ave	5.00	2108	12.3	12.3	25.7
10th, honors	6.00	223	1.3	1.3	27.0
11th, below	7.00	205	1.2	1.2	28.2
11th, ave	8.00	2271	13.2	13.2	41.4
11th, honors	9.00	248	1.4	1.4	42.9
12th, below	10.00	447	2.6	2.6	45.5
12th, ave	11.00	7123	41.4	41.4	86.9
12th, honors	12.00	2246	13.1	13.1	100.0
		---	---	---	
	Total	17188	100.0	100.0	



Further Explorations with the Preliminary English Pipeline

How "ordered" is this preliminary English pipeline? The previously constructed pipeline measures in math and science are ordered, categorical variables—the actual scales are most accurately described as nominal (certainly not an interval or ratio scale). The hierarchical nature of the math curriculum (and to a lesser extent the science curriculum) facilitated the construction of the associated pipeline measures. A steady

increase in 12th-grade achievement along these scales reinforced the ordered nature of the categories and resulted in strong correlations between the pipelines and 12th-grade subject area achievement scores.

Is there a similarly effective ordering in this English pipeline? Within a grade level, it is reasonable to order pipeline progress based on the three "tracks" (below, average, and honors). But who "progresses" further: a student who stops at the 11th-grade honors-level, or a student who stops at the 12th-grade average-level? A student who stops at 10th-grade average-level or 12th-grade below-level?

One way to estimate the extent to which these categories are ordered is to examine average achievement for each of the thirteen groups. Tables 3 and 4 summarize (unweighted) ANOVAs using the 12th-grade and 8th-grade reading achievement scores. To no surprise, there are significant differences across groups. What is important here is to notice the patterns of 12th-grade achievement (see Table 3):

(1) Students who complete no General English courses or who stop with a below-level course (regardless of which grade) score similarly (mean 12th-grade reading scores from 22.7 to 24.4).

(2) Students who stop at an average-level course (again regardless of which grade) score similarly (mean 12th-grade reading scores from 30.8 to 33) and substantially higher than the students who stop at a below-level course.

(3) Students who stop at an honors-level course (again regardless of grade) score similarly (mean 12th-grade reading scores from 39.3 to 41.4) and substantially higher than the students who stop at an average-level course.

Similar patterns can be found in Table 4 for 8th-grade reading achievement. Consequently, the major stratification in the English pipeline appears to be within the "vertical" curriculum, rather than the "horizontal" curriculum (see Powell, Farrar, & Cohen, The Shopping Mall High School, 1985). The math and science curriculum, with their sequential courses, move from content area to more challenging content area—Algebra, Geometry, Algebra II, Trigonometry— and are essentially horizontal in structure, dictated by the shifting subject matter. English coursework appears to be more influenced by the various levels or degrees of difficulty in comparable courses (i.e., 10th-grade General English)—below, average, and honors—and is essentially vertical in structure. This suggests that an English "pipeline" measure might ultimately be more of an extended "track" measure rather than a pipeline measure in the traditional sense.

Table 3.—Highest General English Course Completed and 12th-Grade Reading Achievement (unweighted ANOVA)

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob
Between Groups	12	251761.3769	20980.1147	241.7200	.0000
Within Groups	12923	1121653.219	86.7951		
Total	12935	1373414.596			

Group	Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum
none	408	24.4799	10.3690	.5133	10.3200	50.2900
9th, below	83	24.3567	8.5961	.9435	12.1700	47.2100
9th, ave	565	30.7916	10.4397	.4392	10.5500	50.8900
9th, honors	38	41.1426	7.1157	1.1543	21.5700	50.8900
10th, below	128	22.6790	8.1310	.7187	10.8500	49.8200
10th, ave	1443	32.9900	9.7908	.2577	11.0700	50.8900
10th, honors	176	39.3156	8.9610	.6755	12.6100	50.8900
11th, below	123	23.2993	8.9809	.8098	10.6100	51.1600
11th, ave	1650	31.7392	9.8521	.2425	10.4100	50.8900
11th, honors	170	40.2424	7.5515	.5792	13.6400	50.8900
12th, below	352	24.0320	8.8487	.4716	10.6100	50.8900
12th, ave	5854	32.5277	9.6073	.1256	10.4000	50.8900
12th, honors	1946	41.4214	7.1905	.1630	11.6300	51.1600
Total	12936	33.2372	10.3043	.0906	10.3200	51.1600

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
43.8228	12	12923	.000

Table 4.—Highest General English Course Completed and 8th-Grade Reading Achievement (unweighted ANOVA)

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	12	102928.1541	8577.3462	137.5577	.0000
Within Groups	9124	568922.7984	62.3545		
Total	9136	671850.9524			

Group	Count	Mea	Standard Deviation	Standard Error	Minimum	Maximum
none	142	21.7431	8.4778	.7114	11.1800	43.8300
9th, below	26	21.1919	7.4271	1.4566	12.4100	40.5200
9th, ave	325	27.0463	8.3203	.4615	11.4700	43.8300
9th, honors	26	37.0265	6.9935	1.3715	15.0100	43.8300
10th, below	65	19.3994	6.0383	.7490	10.9600	39.8600
10th, ave	1024	28.1046	8.1095	.2534	10.8900	43.8300
10th, honors	124	33.3903	7.8289	.7031	11.5800	43.8300
11th, below	77	19.7110	5.9987	.6836	11.4500	40.9200
11th, ave	1194	27.3493	8.4045	.2432	10.8200	43.8300
11th, honors	134	34.4390	6.7131	.5799	17.3400	43.8300
12th, below	227	21.7770	7.0256	.4663	10.9100	43.8300
12th, ave	4286	27.4473	8.0475	.1229	10.7200	43.8300
12th, honors	1487	34.6754	7.1018	.1842	11.9800	43.8300
Total	9137	28.5109	8.5755	.0897	10.7200	43.8300

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
10.8821	12	9124	.000

Reviewing the Challenges

The previous work makes it clear what the particular challenges are in regard to an English pipeline measure: (1) due in part to graduation requirements, the English pipeline is rather "bunched up" at the high

end (with many students taking 4 or more years of English; (2) much of the hierarchy in the English curriculum is "vertical" [traditional tracking, or stratification by level of difficulty—honors, average, or below average] rather than "horizontal" [stratification by content]; and (3) the predominant "track" of a student's English coursework may be more important than the number of years completed (Carnegie units). The preliminary English pipeline explored in previous tables (based on the highest level—grade level and track—of General English completed) suggests substantial 12th-grade reading achievement differences across students in different tracks. The next section focuses on several attempts to lay the groundwork for choosing the most appropriate extensions (or revisions) of the initial pipeline, with an eye on both features of English coursetaking: the number of credits completed, and the track (or predominant track) of the student's coursework.

Number of Credits and the High End of the Preliminary English Pipeline

Table 5 summarizes the total number of English courses completed— approximately two thirds of the transcript sample complete four or more years of the English. It is important to remember that only 81.5% of the transcript sample have transcript information available on all four high school years, so these figures are likely to underestimate the total number of credits for many students.

Indeed, among the students with full transcript data available, almost 80% complete 4 credits or more. Furthermore, it is only on this subsample of the transcript file that overall pipeline progress is particularly meaningful (and comparable). Pipeline progress (or measures of credits completed) based on incomplete records is likely to underestimate the status of students who stay in school for four years. Moreover, for students who drop out of school, their *exiting* pipeline status (based on transcript data when they were in school) may indeed reflect the highest level completed at the time of departure, but it is not reasonable to compare their exiting-status with the status of other students at the end of four years of high school. One could, however, compare partial attainment—e.g., pipeline progress at the end of 9th grade, progress at the end of 10th grade, etc.—but the goal here is to construct pipeline measures reflecting attainment after four years.]

Table 5.—Number of Total English Credits Completed (unweighted)

No. of Credits Completed	Frequency	Percent
none	491	2.8
more than 0, less than 2	1159	6.7
at least 2, less than 3	1073	6.2
at least 3, less than 4	3000	17.4
at least 4, less than 5	9559	55.3
5 or more	2003	11.6
transcript sample	17285	100.0

Over half (54.5%) of the sample completed a General 12th-grade English course at either the "average" or "honors" levels (the high end of the preliminary pipeline, see Figure 2). Table 6 breaks these two groups down by the number of credits completed. Nearly three quarters of each group complete at least 4 credits, but less than 5 credits, of English. Slightly more of the students who complete 12th-grade honors General English earn a total of 5 credits or more (18.3%) as compared to the students who complete 12th-grade average-level General English (15.5%).

But which appears to have more impact on 12th-grade reading achievement: the track of the highest course, or the overall number or credits completed? Table 7 summarizes 12th-grade reading achievement for these six groups. The (unweighted) one-way ANOVA suggests two patterns: (a) track differences are substantially larger than credit differences [almost 10 points as opposed to 0.5-1.5 points, respectively], and (b) within track, credit differences do not appear to be linear [i.e., more credits do not generally seem to lead to higher achievement]. Comparing 12th-grade reading achievement across these same three credit-categories for all students with complete transcript data (not simply these students who have completed either 12th-grade honors or average-level General English) similarly suggests that students with 5 or more years of English credits are scoring less than student with at least 4, but less than 5, credits.

Table 6.—Students in the Upper End of the Preliminary English Pipeline and the Number of English Credits Completed (unweighted)

	Number of Credits Completed		
	Less than 4	At least 4, Less than 5	5 or more
12th Grade, Average	11.3%	73.3%	15.5%
12th Grade, Honors	7.6%	74.0%	18.3%

Table 7.—12th-Grade Reading Achievement—Comparing Track and Number of Credits at the High End of the English Pipeline (unweighted)

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob
Between Groups	5	120573.2219	24114.6444	295.6368	.0000
Within Groups	7794	635744.6306	81.5685		
Total	7799		756317.8525		

Group	Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum
12 ave, <4	598	30.2868	10.1900	.4167	10.4000	50.8900
12 ave, <5	4323	33.0415	9.3950	.1429	10.4400	50.8900
12 ave, 5+	933	31.5834	9.9236	.3249	11.0000	50.8900
12 hon, <4	149	41.8259	7.1719	.5875	13.9300	50.8900
12 hon, <5	1446	41.3077	7.0630	.1857	11.6900	50.8900
12 hon, 5+	351	41.7181	7.7071	.4114	11.6300	51.1600
Total	7800	34.7465	9.8477	.1115	10.4000	51.1600
		Fixed Effects Model	9.0315	.1023		
		Random Effects Model		2.9719		

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
80.6922	5	7794	.000

A NEW DIRECTION

Where to Now?

In seems clear that, in order to extend the preliminary English pipeline (based only on the completion of General English courses), the total number of English credits completed will play only a minor role in making distinctions between the quality and rigor of students' English coursetaking behaviors. Instead, the dominant track, or academic level, of students' coursework needs to be categorized.

Previously all the CSSC English courses were divided into six sub-groups:

(1) *General English* [including the grade-specific, general courses, organized by ability-level or track];

(2) *Literature* [including general, American, British, World, etc.];

(3) *Composition* [including general writing and grammar courses];

(4) *Speech/Communication* [including speech and public speaking];

(5) *Developmental/Functional English* [including various language arts courses]; and

(6) *Other* [including technical writing, rhetoric, and linguistics].

For the purposes of describing a student's English program, these six subgroups are re-organized into four categories:

(1) *Honors courses*—those General English courses labeled as "advanced" or "honors" grade-level courses;

(2) *Low-level courses*—those General English courses labeled as "below" grade-level courses, and all Developmental/Functional English courses;

(3) *Regular courses*—those General English courses labeled as "average" grade-level courses;

(4) *Other Regular courses*—the remaining English courses not specifically labeled as to level (i.e., all Literature, Composition, Speech/ Communication, and "Other" courses).

Using these distinctions, three sets of preliminary coursetaking measures are constructed:

(1) four (continuous) measures capturing the total number of credits completed in Honors, Low-level, Regular, or "Regular + Other Regular" coursework [NOTE—Consistent with work in earlier projects, a 0-score represents students who attempted, but did not complete, credits in the named category. Students who never attempted credits in the named category are assigned a "missing value" designation];

(2) four (continuous) measures capturing the proportion of a student's English credits which can be classified as Honors, Low-level, Regular, or "Regular + Other Regular" coursework [these proportions are only defined on the subsample of 16794 who completed some non-zero English credits];

(3) four (categorical) measures collapsing the abovementioned proportions into five groups—no credits; some credits but less than 25%; at least 25% but less than 50%; at least 50% but less than 75%; 75% or more.

Tables 8-11 summarize this last set of measures. Approximately three quarters of the students complete no Honors English coursework (see Table 8), and three quarters of the students complete no Low-level English coursework (see Table 11).

Table 8.—Proportion of English Coursework Which is General Honors (unweighted)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0	1.00	13124	75.9	78.1	78.1
(0, .25)	2.00	568	3.3	3.4	81.5
[.25, .50)	3.00	1158	6.7	6.9	88.4
[.50, .75)	4.00	886	5.1	5.3	93.7
[.75, 1.0]	5.00	1058	6.1	6.3	100.0
	.	491	2.8	Missing	
	Total	17285	100.0	100.0	
Valid cases	16794	Missing cases		491	

Table 9.—Proportion of English Coursework Which is General Regular (unweighted)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0	1.00	2158	12.5	12.8	12.8
(0, .25)	2.00	708	4.1	4.2	17.1
[.25, .50)	3.00	2200	12.7	13.1	30.2
[.50, .75)	4.00	3273	18.9	19.5	49.7
[.75, 1.0]	5.00	8455	48.9	50.3	100.0
	.	491	2.8	Missing	
	Total	17285	100.0	100.0	
Valid cases	16794	Missing cases		491	

Table 10.—Proportion of English Coursework Which is General Regular or Other Regular (unweighted)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0	1.00	1142	6.6	6.8	6.8
(0, .25)	2.00	410	2.4	2.4	9.2
[.25, .50)	3.00	1133	6.6	6.7	16.0
[.50, .75)	4.00	1903	11.0	11.3	27.3
[.75, 1.0]	5.00	12206	70.6	72.7	100.0
	.	491	2.8	Missing	
	Total	17285	100.0	100.0	
Valid cases	16794	Missing cases		491	

Table 11.—Proportion of English Coursework Which is General Low-Level or Developmental/Functional (unweighted)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0	1.00	13091	75.7	78.0	78.0
(0, .25)	2.00	1298	7.5	7.7	85.7
[.25, .50)	3.00	916	5.3	5.5	91.1
[.50, .75)	4.00	600	3.5	3.6	94.7
[.75, 1.0]	5.00	889	5.1	5.3	100.0
	.	491	2.8	Missing	
	Total	17285	100.0	100.0	
Valid cases	16794	Missing cases		491	

Constructing Quality Patterns in English Coursetaking

Using these four measures, a student's overall English program may be classified into seven categories:

(1) Students who complete 75% or more of their English coursework in Honors courses (regardless of other English coursework);

(2) Students who complete at least 50% (but less than 75%) of their English coursework in Honors courses (regardless of other English coursework);

(3) Students who complete some of their English coursework in Honors courses (but less than 50%), and who complete no Low-level coursework;

(4) Students who complete 75% or more of their English coursework in Low-Level courses (regardless of their other English coursework);

(5) Students who complete at least 50% (but less than 75%) of their English coursework in Low-level courses (regardless of their other English coursework);

(6) Students who complete some of their English coursework in Low-Level courses (but less than 50%), and who complete no Honors coursework;

(7) Students who complete some combination of English Coursework other than those described above—this essentially includes students who complete neither Honors nor Low-level

coursework (98.5% of students who fall into this category do so because they complete neither Honors nor Low-level coursework), as well as a few students who complete small amounts of both.

These seven groups may be conceptually "ordered" based on the predominant track reflected in the coursetaking patterns. Table 12 summarizes the distribution of students across these ordered groups, or *quality patterns* of English coursetaking. Nearly 60% of the students fall in the middle category— students who complete neither Honors nor Low-level English courses. Approximately 5% of the students complete three quarters or more of their English courses with Low-level coursework, while approximately 6% of the students complete three quarters or more of their English courses with Honors coursework.

Table 12.—Quality Patterns of English Coursetaking (unweighted)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
75+ Low	1.00	889	5.1	5.3	5.3
50+ Low	2.00	600	3.5	3.6	8.9
Some Low, no Honors	3.00	1983	11.5	11.8	20.7
Other	4.00	9811	56.8	58.4	79.1
Some Honors, no Low	5.00	1567	9.1	9.3	88.4
50+ Honors	6.00	886	5.1	5.3	93.7
75+ Honors	7.00	1058	6.1	6.3	100.0
	.	491	2.8	Missing	
	Total	17285	100.0	100.0	
Valid cases	16794	Missing cases	491		

At least two questions remain: whether or not the subgroups described by this new measure reflect distinct achievement groups, and whether or not the measure has sufficient overall predictive power for 12th-grade reading achievement. Table 13 summarizes an (unweighted) ANOVA model for 12th-grade reading achievement. As the quality of a student's English coursetaking increases, so does 12th-grade reading achievement. Indeed, a regular, incremental increase is evident at each new stage of the quality measure, with substantial incremental changes as the proportion of low-level coursework decreases, and the initial move into some Honors coursework (the transition from the fourth to the fifth group). The eta-squared value suggests that nearly a quarter of the variability in 12th-grade reading achievement can be explained by these quality patterns.

This quality index, like the previously constructed math and science pipeline measures, is at best an ordered-categorical measure (failing to reflect even an interval scale), despite its semi-normal "distribution." Nonetheless, such measures are often used in prediction equations, even though regression assumptions force the incremental effects to be constant along the underlying "continuum" (a condition blatantly false with the previously constructed math and science pipelines, as well as with this English quality measure—see previous reports for a more indepth discussion of this problem).

Table 14 presents simple correlations between 12th-grade reading achievement, the total number of English credits, and the (ordered) English quality patterns. Once the sample is restricted to students with complete transcript information (Panel B in Table 14), there is but a trivial relationship between 12th-grade reading achievement and the total number of English credits (r = .092). However, there is a moderately strong correlation between 12th-grade reading achievement and the coursetaking quality patterns (r = .460). Consequently, this measure of the English quality patterns appears to be a strong candidate for a measure of the rigor of a student's English coursetaking history.

Table 13.—Quality Patterns of English Coursetaking and 12th-Grade Reading Achievement (unweighted)

Source	D.F.	Sum of Squares	Mean Squares	F Prob.	F Ratio
Between Groups	6	325697.0579	54282.8430	678.3592	.0000
Within Groups	12813	1025306.485	80.0208		
Total	12819	1351003.543			

Group	Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum
75+_low	546	21.4695	7.2960	.3122	10.6100	48.5200
50+_low	405	23.6414	8.2436	.4096	10.3200	49.5700
L, no H	1458	27.7412	9.4966	.2487	10.4000	50.8900
other	7477	32.9256	9.5308	.1102	10.4400	51.1600
H, no L	1302	39.5241	8.0047	.2218	11.6300	50.8900
50+_hon	734	41.1708	7.0995	.2620	12.6100	51.1600
75+_hon	898	42.0976	6.5123	.2173	13.4500	50.8900
Total	12820	33.3394	10.2660	.0907	10.3200	51.1600

eta-squared: .241

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
95.7183	6	12813	.000

Table 14.—12th-Grade Reading Achievement, Total English Credits, and Quality Patterns of English Coursetaking: Correlations

A. "Full" Sample (students who complete some English credits —16,794 of the 17,285 students in the NELS transcript file)

	Course Quality Patterns	Total English Credits
12th-Grade Reading Achievement	.477	.205
Total English Credits	.166	—

B. Sample with Complete transcript Information (students with complete available transcript information and who complete some English credits—14,046 of the 17,285 students in the NELS transcript file)

	Course Quality Patterns	Total English Credits
12th-Grade Reading Achievement	.460	.092
Total English Credits	.038	—

Tinkering with the Course Quality Patterns—Part 1

Before settling on a final form for the measure, two possible extensions of this English course quality index were explored to see if a revised indicator would improve its predictability of 12th-grade reading achievement. The current, seven-level measure is correlated (unweighted) with 12th-grade reading achievement at r = .460 (on the sample of students with complete transcript information—see Table 14).

The first potential extension focuses on the endpoints—namely, students with 75 percent or more of their English coursework in Low-level courses (group 1) or in Honors-level courses (group 7). Does the quality pattern measure sustain the further separation of these endpoints into two categories each: (a) at least 75 percent, but less than 100 percent; and (b) 100 percent? In both instances, there are students at 100 percent (see Table 15), although a greater number of students complete 100 percent of their coursework in Low-level courses than complete 100 percent of their coursework in Honors-level courses.

Further analysis with this extended measure revealed some achievement differences between the two Low-level sub-groups, but the resulting change in overall correlation with 12th-grade reading achievement (and the change in eta-squared in an ANOVA) was quite small. Because of these very small changes (due to the fact that each tail only involves 5-6% of the sample), it did not seem warranted to increase the number of categories to nine by splitting the two tails.

Table 15.—English Course Quality Patterns: The Results of Splitting the Endpoints (unweighted)

ORIGINAL VERSION	No. of Cases	REVISED VERSION	No. of Cases
		100 Low-level	620
75+ Low-level	889	75+ Low-level	269
75+ Honors-level	1058	75+ Honors-level	567
		100 Honors-level	491

Tinkering with the Course Quality Patterns—Part 2

In addition to the possibility of splitting the tails, the possibility of subdividing the large, middle category was explored. Nearly 60% of the students elect neither Honors-level nor Low-level English courses, instead completing all credits through average-level or other, non-specified level, courses. The most reasonable way to further distinguish these students would be through the total number of English credits completed—a characteristic that is not currently tapped by the course quality patterns. Previous investigations suggested only a small relationship between number of credits completed and 12th-grade achievement (see Tables 7 and 14). Furthermore, in some instances more credits appeared to be associated with lower achievement (see especially Table 7).

Table 16 summarizes an (unweighted) two-way ANOVA, comparing the English course quality patterns and total number of English credits completed on 12th-grade reading achievement. Several important results now clarify and reinforce previous findings concerning the total number of English credits completed:

(1) achievement differences across credit categories are substantially smaller than achievement differences across quality patterns;

(2) when a student completes mostly Low-level courses (the first two quality patterns), more credits is associated with moderately *lower* achievement;

(3) when a student completes mostly Honors-level courses (the last two quality patterns), more credits is associated with somewhat *higher* achievement.

These last two findings help to explain why a single measure of the total number of English credits completed—without regard to the level of the coursework— is negligibly correlated with 12th-grade reading achievement.

What does this analysis suggest about the possibility of splitting the middle quality pattern (i.e., group 4, or the "Other" pattern)? It *is* the case that students in this group who complete fewer than 4 credits of English appear to score lower than students who complete 4 or more credits. Furthermore, these students with fewer than 4 credits appear to score higher, on average, than students in the previous quality pattern (some Low-level, but no Honors-level), regardless of the number of credits. Consequently, splitting this middle category into two groups—those with fewer than 4 credits, those with 4 or more credits—would extend the ordered quality patterns into eight categories, and divide the large middle group. But is this extension desirable?

Two arguments suggest not. Similar to the previously-explored extension based on splitting the tails, the resulting increase in correlation with achievement and the eta-squared figure from an ANOVA are negligible (e.g., the correlation shifts from r = .48 to r = .49). In addition, this extension, unlike the potential tail-splits, draws on a substantially different conceptual basis than the original underlying logic of the quality patterns—namely, the number of credits completed. While the introduction of this new distinction (number of credits) *only within the middle group* might be justifiable if such a distinction substantially improved the measure, it is not reasonable to (somewhat artificially) introduce a new idea for such negligible improvement. Hence, this seven-level measure of English course quality patterns is in its final form.

Table 16.—12th-Grade Reading Achievement: Course Quality Patterns and the Number of Credits Completed (unweighted)

	Total Number of English Credits Completed		
Quality Patterns:	[0,4)	[4.5)	5 or more
75+ Low	19.88	23.55	19.76
	(226)	(239)	(81)
50+ Low	23.28	25.23	20.88
	(156)	(171)	(78)
Low, no Honors	26.73	28.08	28.17
	(397)	(657)	(404)
Other	30.67	33.76	34.24
	(2121)	(4672)	(684)
Honors, no Low	39.00	39.36	40.60
	(187)	(891)	(224)
50+ Honors	39.54	41.01	42.81
	(100)	(488)	(146)
75+ Honors	41.90	42.03	43.44
	(81)	(765)	(52)

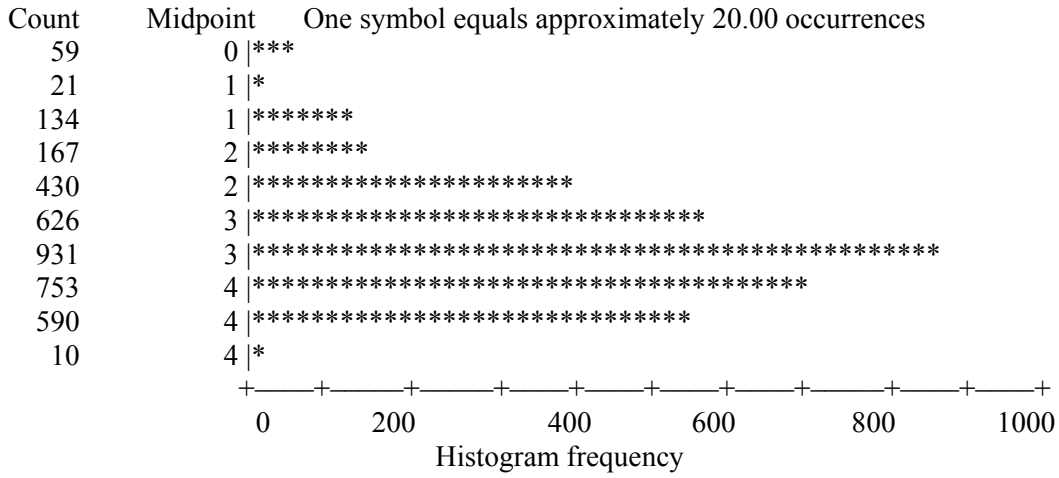
Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	340424.721	8	42553.090	541.655	.000
NEWPIPE2	292398.415	6	48733.069	620.320	.000
CREDCAT	14727.663	2	7363.832	93.734	.00
2-Way Interactions	5073.774	12	422.814	5.382	.000
NEWPIPE2 CREDCAT	5073.774	12	422.814	5.382	.000
Explained	345498.495	20	17274.925	219.891	.000
Residual	1005505.048	12799		78.561	
Total	1351003.543	12819		105.391	

Multiple R Squared	.252
Multiple R	.502

Creating English Performance Measures

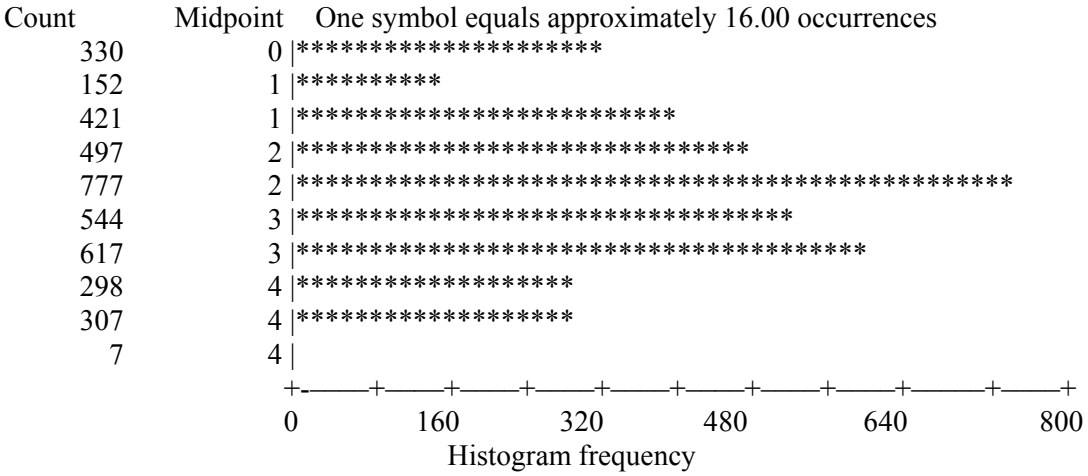
Using the same threefold distinction inherent in the English course quality index, three performance measures were constructed: (1) average grades in *Honors-level* English courses; (2) average grades in *Low-level* English courses; and (3) average grades in *regular* [Average-level or no specific indicated level] English courses. Figures 3-5 summarize the distributional properties of these measures [NOTE—0-values mean indicated coursework was elected but not passed. Students who did not attempt coursework of the designated type are re-coded to systems-missing values.] Not surprisingly, grades tend to be higher in the Honors coursework, and lower in the Low-level coursework.

Figure 3.—HONGRDS: Honors-level English, average grades [unweighted]



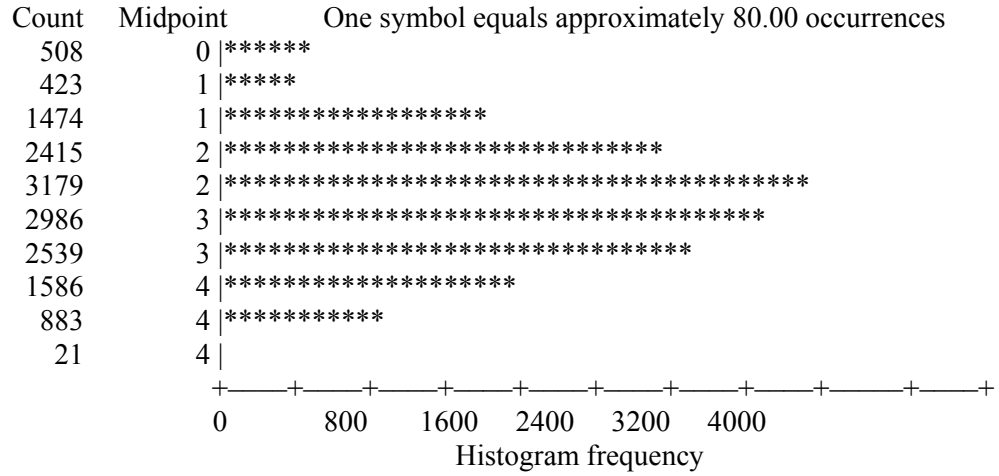
Mean	2.847	Std err	.014	Median	3.000
Mode	3.000	Std dev	.869	Variance	.756
Kurtosis	.702	S E Kurt	.080	Skewness	-.855
S E Skew	.040	Range	4.300	Minimum	.000
Maximum	4.300	Sum	10592.399		
Valid cases	3721	Missing cases	14823		

Figure 4.—LOWGRDS: Low-level English, average grades [unweighted]



Mean	2.097	Std err	.018	Median	2.000
Mode	2.000	Std dev	1.101	Variance	1.213
Kurtosis	-.653	S E Kurt	.078	Skewness	-.157
S E Skew	.039	Range	4.300	Minimum	.000
Maximum	4.300	Sum	8284.023		
Valid cases	3950	Missing cases	14594		

Figure 5.—REGGRDS: Regular English, average grades [unweighted]



Mean	2.225	Std err	.007	Median	2.250
Mode	2.000	Std dev	.943	Variance	.889
Kurtosis	-.404	S E Kurt	.039	Skewness	-.176
S E Skew	.019	Range	4.300	Minimum	.000
Maximum	4.300	Sum	35637.695		
Valid cases	16014	Missing cases	2530		

A PRELIMINARY EXPLORATION OF OVERALL COURSETAKING

Using the New Basics to Measure Overall Coursetaking Intensity

Although the primary focus of this project—and the previous projects— is on a specific subject area, the question of a single pipeline/index capturing the rigor of a student's *overall* coursetaking behavior is an intriguing one. What follows is an initial exploration into such a possible index of overall coursetaking intensity. This exploration proceeds along two perspectives: (1) the possible use of the New Basics thresholds; and (2) the possible merging of previously-constructed pipeline measures. A full investigation of this task is likely to be the particular focus of a subsequent project.

There are five New Basics flags available on the NELS transcript file, corresponding to the five New Basics thresholds, namely students who complete:

(1) 4E + 3SS + 2S + 2M

(2) 4E + 3SS + 3S + 3M

(3) 4E + 3SS + 3S + 3M + .5CS

(4) 4E + 3SS + 3S + 3M + 2FL

(5) 4E + 3SS + 3S + 3M + .5CS + 2FL

[E = English, SS = Social Studies, S = Science, M = Math, CS = Computer Science, FL = Foreign Language].

Although these thresholds depend solely upon Carnegie units completed (unlike the subject-specific pipeline measures currently being constructed), it might be possible to use these thresholds to construct a useful measure of overall coursetaking behavior.

Table 17 summarizes a six-level measure based on these New Basics thresholds (using the "NAEP-equivalent" threshold flags). Over 40 percent of students in the transcript file did not complete one of the New Basics patterns, and 20 percent of the students met the lowest threshold—4 years of English, 3 years of Social Studies, 2 years of Science, and 2 years of Math—but no higher threshold. Nearly 20 percent met the highest threshold (4 years of English, 3 years of Social Studies, 3 years of Science, 3 years of Math, .5 years of Computer Science, and 2 years of a Non-English Language). The distribution of this variable is far from ideal, with few students in the middle categories, and most students at the low end (meeting none of the New Basics thresholds). This initial distribution (disappointing from a statistical perspective) does not preclude the possibility of extending the categories using the emerging subject matter pipelines.

How distinct are these six groups in terms of 12th-grade composite (math, reading, science, and history) achievement? Table 18 summarizes the results from an (unweighted) ANOVA using a simple average of the four 12th-grade NELS achievement tests (re-scaled into a z-score with mean=0, SD=1). The lowest two categories (comprising over 60 percent of the sample) scored similarly, about a third of a standard deviation below the grand mean. The highest two categories (comprising nearly 30 percent of the sample) also scored similarly, over half a standard deviation above the grand mean. Surprisingly, students who met the highest New Basics threshold (which includes work in Computer Science and a Foreign Language) scored lower than students who met all but the Computer Science requirement (.55 versus .68). This unusual result emerged for all four of the separate 12th-grade achievement exams.

Between the undesirable distributional properties of the New Basics threshold patterns and the equally undesirable (and difficult to explain) achievement differences across the groups, there appear to be several serious obstacles to extending this measure. Furthermore, since the New Basics thresholds are based solely on earned credits, these overall threshold patterns incorporate all the previously discussed problems with

credit-measures. Consequently, a more profitable approach to constructing a measure of overall coursetaking intensity is likely to be found by merging the four subject area pipelines (once all four all constructed).

Table 17.—New Basics Pipeline Patterns (unweighted).

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
OTHER	1.00	7474	43.2	43.2	43.2
4E+3SS+2S+2M	2.00	3452	20.0	20.0	63.2
4E+3SS+3S+3M	3.00	446	2.6	2.6	65.8
4E+3SS+3S+3M+.5CS	4.00	832	4.8	4.8	70.6
4E+3SS+3S+3M +2F	5.00	1983	11.5	11.5	82.1
4E+3SS+3S+3M+.5CS+2F	6.00	3098	17.9	17.9	100.0
		---	---	---	
	Total	17285	100.0	100.0	

Note—Threshold pattern indicates the number of students who met the indicated threshold, but no higher threshold.

Table 18.—12th-Grade Composite Achievement and the New Basics Threshold Patterns (unweighted).

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	5	2400.7236	480.1447	588.4558	.0000
Within Groups	13016	10620.2764	.8159		
Total	13021	13021.0000			

Group	Count	Mean	Standard Deviation	Standard Error
OTHER	4826	-.3315	1.0073	.0145
4E+3SS+2S+2M	2799	-.3320	.8788	.0166
4E+3SS+3S+3M	369	-.1723	.9011	.0469
4E+3SS+3S+3M+.5CS	705	.0257	.8552	.0322
4E+3SS+3S+3M +2FL	1650	.6760	.7994	.0197
4E+3SS+3S+3M+.5CS+2FL	2673	.5459	.7969	.0154
Total	13022	.0000	1.0000	.0088

Levene Test for Homogeneity of Variances

Statistic	df1	df2	2-tail Sig.
72.5071	5	13016	.000

Revisiting the Pipeline Measures

Table 19 displays bivariate correlations (unweighted) between the currently constructed pipeline measures and 12th-grade achievement. It also includes a tentative math-science pipeline (highest level completed in both), which reflects a merged version of the two separate pipelines:

[Highest Level Completed in Math AND Science]

	No. of Cases	Percentage
(8) Calculus + Chemistry + Physics	1305	7.5%
(7) Pre-Calculus + (Chemistry OR Physics)	2038	11.8%
(6) Advanced Math I + (Chemistry OR Physics)	1766	10.2%
(5) Middle Academic Math II + (Biology OR higher)	4245	24.6%
(4) Middle Academic Math II OR (Biology OR higher)	4866	26.2%
(3) Middle Academic Math I OR Physical Science II	1643	9.5%
(2) Non-Academic/Low Academic Math OR Physical Science I	1056	6.1%
(1) No Math + No Science	366	2.1%

Of all the pipelines, progress along the math pipeline consistently correlates most strongly with all four achievement tests (and, thus, also with composite achievement). The New Basics threshold measure correlates least (the fact that the highest New Basics group scores somewhat lower than the second highest group on all four tests certainly attenuates the overall relationship). The English quality patterns are not as strongly associated with achievement (including reading achievement) as the math or science pipelines. The tentatively-merged math/science pipeline correlates with achievement at similar (but slightly lower) levels as the math pipeline alone. Whether any other single pipeline measure could exceed a .70 correlation with achievement is as yet unknown. However, an unweighted OLS regression model for 12th-grade composite achievement (see Table 20) does suggest independent effects of all three pipelines—math, science, and English—despite the high correlations among the pipelines themselves (math and science pipeline progress is correlated at .732, math and English at .505, and science and English at .467).

Table 19.—12th-Grade Achievement—Correlations with Pipeline Patterns (unweighted).

	12th-Grade Achievement				
	Reading	Math	Science	History	Composite
Math pipeline	.574	.771	.595	.585	.699
Science pipeline	.496	.623	.518	.510	.595
English quality patterns	.477	.499	.412	.446	.509
New Basics pipeline	.350	.428	.340	.354	.408
Math-Science pipeline	.560	.738	.588	.574	.681

Table 20.—12th-Grade Composite Achievement—OLS Regression Model

	Beta-coefficients
Math pipeline	.487***
Science pipeline	.168***
English quality patterns	.189***
R-squared	.536***

Prospects for a Single Measure of Coursetaking Intensity

This initial inquiry into the possibility of constructing a single measure of overall coursetaking intensity suggests at least two ideas for future efforts:

Any use of the New Basics thresholds—even as a preliminary framework for a revised measure—seems unlikely to produce a useful measure of coursetaking intensity. Furthermore, a reliance on credits earned (independent of the "intensity" of the coursework) maintains a "status quo" perspective about coursework and achievement, a perspective effectively challenged by this ongoing work on pipeline measures.

Given the independent pipeline effects on 12th-grade achievement—as evidenced by the regression model in Table 4—a single, merged pipeline measure might be possible. Whether or not the use of a single measure would be preferable to the set of four (math, science, English, and social studies) remains to be seen.

CONCLUSION

The earlier report—*Mathematics, Foreign Language, and Science Coursetaking and the NELS:88 Transcript Data* (completed December 1997, and available from Jeff Owings at NCES)—presented arguments for the construction and use of pipeline measures over traditional measures of credits completed. These arguments have not been repeated here, rather it has been assumed that researchers wishing to use these English measures will have read the previous reports. This project marks the completion of work in three of the four main curricular areas, with social studies the remaining subject. Capturing the rigor of student coursetaking in this final subject may prove to be the least tractable as the included courses appear to follow neither a horizontal (stratification by subject matter, as with math and science) nor a vertical curriculum (stratification by track, as with English).

Appendix

COMMENT PROGRAM TO CREATE ENGLISH_LETTERS COURSE VARIABLES (NELS)

```
get file = '/afs/umich.edu/group/acadaff/movers/trcr.sys'.
set width=95.

recode f2rgrade (1=4.3)(2=4.0)(3=3.7)(4=3.3)(5=3.0)(6=2.7)(7=2.3)(8=2.0)
                (9=1.7)(10=1.3)(11=1.0)(12=0.7)(13=0.0)(else=sysmis).

recode f2rgrlev (20 = sysmis).
```

COMMENT PART 1
COMMENT CREATING GENERAL ENGLISH COURSES

```
temporary
select if f2rcssc = 230106
aggregate outfile = 'sys1'/ break = stu_id/
        eng9b_a 'ENGLISH 9, BELOW, CREDITS' = sum(f2rscred)/
        eng9b_b 'ENGLISH 9, BELOW, GRADE' = mean(f2rgrade)/
        eng9b_c 'ENGLISH 9, BELOW, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230107
aggregate outfile = 'sys2'/ break = stu_id/
        eng9a_a 'ENGLISH 9, AVERAGE, CREDITS' = sum(f2rscred)/
        eng9a_b 'ENGLISH 9, AVERAGE, GRADE' = mean(f2rgrade)/
        eng9a_c 'ENGLISH 9, AVERAGE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230108
aggregate outfile='sys3'/ break = stu_id/
        eng9h_a 'ENGLISH 9, HONORS, CREDITS' = sum(f2rscred)/
        eng9h_b 'ENGLISH 9, HONORS, GRADE' = mean(f2rgrade)/
        eng9h_c 'ENGLISH 9, HONORS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230109
aggregate outfile='sys4'/ break = stu_id/
        eng10b_a 'ENGLISH 10, BELOW, CREDITS' = sum(f2rscred)/
        eng10b_b 'ENGLISH 10, BELOW, GRADE' = mean(f2rgrade)/
        eng10b_c 'ENGLISH 10, BELOW, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230110
aggregate outfile='sys5'/ break = stu_id/
        eng10a_a 'ENGLISH 10, AVERAGE, CREDITS' = sum(f2rscred)/
        eng10a_b 'ENGLISH 10, AVERAGE, GRADE' = mean(f2rgrade)/
```

```
        eng10a_c 'ENGLISH 10, AVERAGE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230111
aggregate outfile='sys6'/ break = stu_id/
        eng10h_a 'ENGLISH 10, HONORS, CREDITS' = sum(f2rscred)/
        eng10h_b 'ENGLISH 10, HONORS, GRADE' = mean(f2rgrade)/
        eng10h_c 'ENGLISH 10, HONORS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230112
aggregate outfile='sys7'/ break = stu_id/
        eng11b_a 'ENGLISH 11, BELOW, CREDITS' = sum(f2rscred)/
        eng11b_b 'ENGLISH 11, BELOW, GRADE' = mean(f2rgrade)/
        eng11b_c 'ENGLISH 11, BELOW, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230113
aggregate outfile='sys8'/ break = stu_id/
        eng11a_a 'ENGLISH 11, AVERAGE, CREDITS' = sum(f2rscred)/
        eng11a_b 'ENGLISH 11, AVERAGE, GRADE' = mean(f2rgrade)/
        eng11a_c 'ENGLISH 11, AVERAGE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230114
aggregate outfile='sys9'/ break = stu_id/
        eng11h_a 'ENGLISH 11, HONORS, CREDITS' = sum(f2rscred)/
        eng11h_b 'ENGLISH 11, HONORS, GRADE' = mean(f2rgrade)/
        eng11h_c 'ENGLISH 11, HONORS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230115
aggregate outfile='sys10'/ break = stu_id/
        eng12b_a 'ENGLISH 12, BELOW, CREDITS' = sum(f2rscred)/
        eng12b_b 'ENGLISH 12, BELOW, GRADE' = mean(f2rgrade)/
        eng12b_c 'ENGLISH 12, BELOW, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230116
aggregate outfile='sys11'/ break = stu_id/
        eng12a_a 'ENGLISH 12, AVERAGE, CREDITS' = sum(f2rscred)/
        eng12a_b 'ENGLISH 12, AVERAGE, GRADE' = mean(f2rgrade)/
        eng12a_c 'ENGLISH 12, AVERAGE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230117
aggregate outfile='sys12'/ break = stu_id/
        eng12h_a 'ENGLISH 12, HONORS, CREDITS' = sum(f2rscred)/
        eng12h_b 'ENGLISH 12, HONORS, GRADE' = mean(f2rgrade)/
        eng12h_c 'ENGLISH 12, HONORS, WHEN' = mean(f2rgrlev)
```

COMMENT CREATING COMPOSITION COURSES

```
temporary
select if f2rcssc = 230401
aggregate outfile='sys13'/ break = stu_id/
        comp_a 'COMPOSITION, CREDITS' = sum(f2rscred)/
        comp_b 'COMPOSITION, GRADE' = mean(f2rgrade)/
        comp_c 'COMPOSITION, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230402
aggregate outfile='sys14'/ break = stu_id/
        wrlab_a 'WRITING LAB, CREDITS' = sum(f2rscred)/
        wrlab_b 'WRITING LAB, GRADE' = mean(f2rgrade)/
        wrlab_c 'WRITING LAB, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230403
aggregate outfile='sys15'/ break = stu_id/
        wrlit_a 'WRITING ABOUT LIT, CREDITS' = sum(f2rscred)/
        wrlit_b 'WRITING ABOUT LIT, GRADE' = mean(f2rgrade)/
        wrlit_c 'WRITING ABOUT LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230404
aggregate outfile='sys16'/ break = stu_id/
        vocab_a 'VOCABULARY, CREDITS' = sum(f2rscred)/
        vocab_b 'VOCABULARY, GRADE' = mean(f2rgrade)/
        vocab_c 'VOCABULARY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230405
aggregate outfile='sys17'/ break = stu_id/
        spell_a 'SPELLING, CREDITS' = sum(f2rscred)/
        spell_b 'SPELLING, GRADE' = mean(f2rgrade)/
        spell_c 'SPELLING, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230400
aggregate outfile='sys18'/ break = stu_id/
        compo_a 'COMPOSITION, OTHER, CREDITS' = sum(f2rscred)/
        compo_b 'COMPOSITION, OTHER, GRADES' = mean(f2rgrade)/
        compo_c 'COMPOSITION, OTHER, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230408
aggregate outfile='sys19'/ break = stu_id/
        gram9_a 'GRAMMAR 9, CREDITS' = sum(f2rscred)/
        gram9_b 'GRAMMAR 9, GRADE' = mean(f2rgrade)/
        gram9_c 'GRAMMAR 9, WHEN' = mean(f2rgrlev)
```

```
temporary
select if f2rcssc = 230409
aggregate outfile='sys20'/ break = stu_id/
        gram10_a 'GRAMMAR 10, CREDITS' = sum(f2rscred)/
        gram10_b 'GRAMMAR 10, GRADE' = mean(f2rgrade)/
        gram10_c 'GRAMMAR 10, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230410
aggregate outfile='sys21'/ break = stu_id/
        gram11_a 'GRAMMAR 11, CREDITS' = sum(f2rscred)/
        gram11_b 'GRAMMAR 11, GRADE' = mean(f2rgrade)/
        gram11_c 'GRAMMAR 11, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230411
aggregate outfile='sys22'/ break = stu_id/
        gram12_a 'GRAMMAR 12, CREDITS' = sum(f2rscred)/
        gram12_b 'GRAMMAR 12, GRADE' = mean(f2rgrade)/
        gram12_c 'GRAMMAR 12, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230511
aggregate outfile='sys23'/ break = stu_id/
        crwr10_a 'CREATIVE WRITING 10, CREDITS' = sum(f2rscred)/
        crwr10_b 'CREATIVE WRITING 10, GRADE' = mean(f2rgrade)/
        crwr10_c 'CREATIVE WRITING 10, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230512
aggregate outfile='sys24'/ break = stu_id/
        crwr11_a 'CREATIVE WRITING 11, CREDITS' = sum(f2rscred)/
        crwr11_b 'CREATIVE WRITING 11, GRADE' = mean(f2rgrade)/
        crwr11_c 'CREATIVE WRITING 11, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230513
aggregate outfile='sys25'/ break = stu_id/
        crwr12_a 'CREATIVE WRITING 12, CREDITS' = sum(f2rscred)/
        crwr12_b 'CREATIVE WRITING 12, GRADE' = mean(f2rgrade)/
        crwr12_c 'CREATIVE WRITING 12, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230500
aggregate outfile='sys26'/ break = stu_id/
        crwrot_a 'CREATIVE WRITING, OTHER, CREDITS' = sum(f2rscred)/
        crwrot_b 'CREATIVE WRITING, OTHER, GRADE' = mean(f2rgrade)/
        crwrot_c 'CREATIVE WRITING, OTHER, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230521
```

```
aggregate outfile='sys27'/ break = stu_id/
        crwrid_a 'CREATIVE WRITING, IND STUDY, CREDITS' = sum(f2rscred)/
        crwrid_b 'CREATIVE WRITING, IND STUDY, GRADE' = mean(f2rgrade)/
        crwrid_c 'CREATIVE WRITING, IND STUDY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230412
aggregate outfile='sys28'/ break = stu_id/
        etym_a 'ETYMOLOGY, CREDITS' = sum(f2rscred)/
        etym_b 'ETYMOLOGY, GRADE' = mean(f2rgrade)/
        etym_c 'ETYMOLOGY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230413
aggregate outfile='sys29'/ break = stu_id/
        hand_a 'HANDWRITING, CREDITS' = sum(f2rscred)/
        hand_b 'HANDWRITING, GRADE' = mean(f2rgrade)/
        hand_c 'HANDWRITING, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230414
aggregate outfile='sys30'/ break = stu_id/
        intr_a 'INTERPERSONAL COMM, CREDITS' = sum(f2rscred)/
        intr_b 'INTERPERSONAL COMM, GRADE' = mean(f2rgrade)/
        intr_c 'INTERPERSONAL COMM, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230415
aggregate outfile='sys31'/ break = stu_id/
        word_a 'WORD STUDY, REMEDIAL, CREDITS' = sum(f2rscred)/
        word_b 'WORD STUDY, REMEDIAL, GRADE' = mean(f2rgrade)/
        word_c 'WORD STUDY, REMEDIAL, WHEN' = mean(f2rgrlev)
```

COMMENT PART 2
COMMENT CREATING ASSORTED LITERATURE COURSES

```
temporary
select if f2rcssc = 230118
aggregate outfile='sys1'/ break = stu_id/
        lit1_a 'WORLD LIT, CREDITS' = sum(f2rscred)/
        lit1_b 'WORLD LIT, GRADE' = mean(f2rgrade)/
        lit1_c 'WORLD LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230119
aggregate outfile='sys2'/ break = stu_id/
        lit2_a 'RENN LIT, CREDITS' = sum(f2rscred)/
        lit2_b 'RENN LIT, GRADE' = mean(f2rgrade)/
        lit2_c 'RENN LIT, WHEN' = mean(f2rgrlev)
```

```
temporary
select if f2rcssc = 230120
aggregate outfile='sys3'/ break = stu_id/
        lit3_a 'ROMANTICISM, CREDITS' = sum(f2rscred)/
        lit3_b 'ROMANTICISM, GRADE' = mean(f2rgrade)/
        lit3_c 'ROMANTICISM, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230121
aggregate outfile='sys4'/ break = stu_id/
        lit4_a 'REALISM, CREDITS' = sum(f2rscred)/
        lit4_b 'REALISM, GRADE' = mean(f2rgrade)/
        lit4_c 'REALISM, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230122
aggregate outfile='sys5'/ break = stu_id/
        lit5_a 'CONTEMP LIT, CREDITS' = sum(f2rscred)/
        lit5_b 'CONTEMP LIT, GRADE' = mean(f2rgrade)/
        lit5_c 'CONTEMP LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230123
aggregate outfile='sys6'/ break = stu_id/
        lit6_a 'IRISH LIT, CREDITS' = sum(f2rscred)/
        lit6_b 'IRISH LIT, GRADE' = mean(f2rgrade)/
        lit6_c 'IRISH LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230124
aggregate outfile='sys7'/ break = stu_id/
        lit7_a 'RUSS LIT, CREDITS' = sum(f2rscred)/
        lit7_b 'RUSS LIT, GRADE' = mean(f2rgrade)/
        lit7_c 'RUSS LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230125
aggregate outfile='sys8'/ break = stu_id/
        lit8_a 'BIBLE AS LIT, CREDITS' = sum(f2rscred)/
        lit8_b 'BIBLE AS LIT, GRADE' = mean(f2rgrade)/
        lit8_c 'BIBLE AS LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230126
aggregate outfile='sys9'/ break = stu_id/
        lit9_a 'MYTH & FABLE, CREDITS' = sum(f2rscred)/
        lit9_b 'MYTH & FABLE, GRADE' = mean(f2rgrade)/
        lit9_c 'MYTH & FABLE, WHEN' = mean(f2rgrlev)

temporary
```

```
select if f2rcssc = 230127
aggregate outfile='sys10'/ break = stu_id/
        lit10_a 'DRAMA INTRO, CREDITS' = sum(f2rscred)/
        lit10_b 'DRAMA INTRO, GRADE' = mean(f2rgrade)/
        lit10_c 'DRAMA INTRO, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230128
aggregate outfile='sys11'/ break = stu_id/
        lit11_a 'WORLD DRAMA, CREDITS' = sum(f2rscred)/
        lit11_b 'WORLD DRAMA, GRADE' = mean(f2rgrade)/
        lit11_c 'WORLD DRAMA, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230129
aggregate outfile='sys12'/ break = stu_id/
        lit12_a 'PLAYS MODERN, CREDITS' = sum(f2rscred)/
        lit12_b 'PLAYS MODERN, GRADE' = mean(f2rgrade)/
        lit12_c 'PLAYS MODERN, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230130
aggregate outfile='sys13'/ break = stu_id/
        lit13_a 'NOVELS, CREDITS' = sum(f2rscred)/
        lit13_b 'NOVELS, GRADE' = mean(f2rgrade)/
        lit13_c 'NOVELS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230131
aggregate outfile='sys14'/ break = stu_id/
        lit14_a 'SHORT STORIES, CREDITS' = sum(f2rscred)/
        lit14_b 'SHORT STORIES, GRADE' = mean(f2rgrade)/
        lit14_c 'SHORT STORIES, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230132
aggregate outfile='sys15'/ break = stu_id/
        lit15_a 'MYSTERIES, CREDITS' = sum(f2rscred)/
        lit15_b 'MYSTERIES, GRADE' = mean(f2rgrade)/
        lit15_c 'MYSTERIES, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230133
aggregate outfile='sys16'/ break = stu_id/
        lit16_a 'POETRY, CREDITS' = sum(f2rscred)/
        lit16_b 'POETRY, GRADE' = mean(f2rgrade)/
        lit16_c 'POETRY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230134
aggregate outfile='sys17'/ break = stu_id/
```

```
        lit17_a 'ROCK POETRY, CREDITS' = sum(f2rscred)/
        lit17_b 'ROCK POETRY, GRADE' = mean(f2rgrade)/
        lit17_c 'ROCK POETRY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230135
aggregate outfile='sys18'/ break = stu_id/
        lit18_a 'HUMOR, CREDITS' = sum(f2rscred)/
        lit18_b 'HUMOR, GRADE' = mean(f2rgrade)/
        lit18_c 'HUMOR, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230136
aggregate outfile='sys19'/ break = stu_id/
        lit19_a 'BIOGRAPHY, CREDITS' = sum(f2rscred)/
        lit19_b 'BIOGRAPHY, GRADE' = mean(f2rgrade)/
        lit19_c 'BIOGRAPHY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230137
aggregate outfile='sys20'/ break = stu_id/
        lit20_a 'NON_FICTION, CREDITS' = sum(f2rscred)/
        lit20_b 'NON_FICTION, GRADE' = mean(f2rgrade)/
        lit20_c 'NON_FICTION, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230138
aggregate outfile='sys21'/ break = stu_id/
        lit21_a 'SCIENCE FICTION, CREDITS' = sum(f2rscred)/
        lit21_b 'SCIENCE FICTION, GRADE' = mean(f2rgrade)/
        lit21_c 'SCIENCE FICTION, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230139
aggregate outfile='sys22'/ break = stu_id/
        lit22_a 'THEMES IN LIT, CREDITS' = sum(f2rscred)/
        lit22_b 'THEMES IN LIT, GRADE' = mean(f2rgrade)/
        lit22_c 'THEMES IN LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230140
aggregate outfile='sys23'/ break = stu_id/
        lit23_a 'LIT OF HUMAN VALUES, CREDITS' = sum(f2rscred)/
        lit23_b 'LIT OF HUMAN VALUES, GRADE' = mean(f2rgrade)/
        lit23_c 'LIT OF HUMAN VALUES, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230141
aggregate outfile='sys24'/ break = stu_id/
        lit24_a 'ETHNIC LIT, CREDITS' = sum(f2rscred)/
        lit24_b 'ETHNIC LIT, GRADE' = mean(f2rgrade)/
```

```
        lit24_c 'ETHNIC LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230142
aggregate outfile='sys25'/ break = stu_id/
        lit25_a 'WOMEN IN LIT, CREDITS' = sum(f2rscred)/
        lit25_b 'WOMEN IN LIT, GRADE' = mean(f2rgrade)/
        lit25_c 'WOMEN IN LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230143
aggregate outfile='sys26'/ break = stu_id/
        lit26_a 'SPORTS IN LIT, CREDITS' = sum(f2rscred)/
        lit26_b 'SPORTS IN LIT, GRADE' = mean(f2rgrade)/
        lit26_c 'SPORTS IN LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230144
aggregate outfile='sys27'/ break = stu_id/
        lit27_a 'OCCULT LIT, CREDITS' = sum(f2rscred)/
        lit27_b 'OCCULT LIT, GRADE' = mean(f2rgrade)/
        lit27_c 'OCCULT LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230145
aggregate outfile='sys28'/ break = stu_id/
        lit28_a 'PROTEST LIT, CREDITS' = sum(f2rscred)/
        lit28_b 'PROTEST LIT, GRADE' = mean(f2rgrade)/
        lit28_c 'PROTEST LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230146
aggregate outfile='sys29'/ break = stu_id/
        lit29_a 'YOUTH & LIT, CREDITS' = sum(f2rscred)/
        lit29_b 'YOUTH & LIT, GRADE' = mean(f2rgrade)/
        lit29_c 'YOUTH & LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230147
aggregate outfile='sys30'/ break = stu_id/
        lit30_a 'HEROES, CREDITS' = sum(f2rscred)/
        lit30_b 'HEROES, GRADE' = mean(f2rgrade)/
        lit30_c 'HEROES, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230148
aggregate outfile='sys31'/ break = stu_id/
        lit31_a 'UTOPIAS, CREDITS' = sum(f2rscred)/
        lit31_b 'UTOPIAS, GRADE' = mean(f2rgrade)/
        lit31_c 'UTOPIAS, WHEN' = mean(f2rgrlev)
```

```
temporary
select if f2rcssc = 230149
aggregate outfile='sys32'/ break = stu_id/
        lit32_a 'DEATH, CREDITS' = sum(f2rscred)/
        lit32_b 'DEATH, GRADE' = mean(f2rgrade)/
        lit32_c 'DEATH, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230150
aggregate outfile='sys33'/ break = stu_id/
        lit33_a 'NOBEL PRIZE WINNERS, CREDITS' = sum(f2rscred)/
        lit33_b 'NOBEL PRIZE WINNERS, GRADE' = mean(f2rgrade)/
        lit33_c 'NOBEL PRIZE WINNERS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230151
aggregate outfile='sys34'/ break = stu_id/
        lit34_a 'AUTHOR SEMINAR, CREDITS' = sum(f2rscred)/
        lit34_b 'AUTHOR SEMINAR, GRADE' = mean(f2rgrade)/
        lit34_c 'AUTHOR SEMINAR, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230152
aggregate outfile='sys35'/ break = stu_id/
        lit35_a 'REAL_LIFE PROB SOLV, CREDITS' = sum(f2rscred)/
        lit35_b 'REAL_LIFE PROB SOLV, GRADE' = mean(f2rgrade)/
        lit35_c 'REAL_LIFE PROB SOLV, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230153
aggregate outfile='sys36'/ break = stu_id/
        lit36_a 'INDEPT STUDY, CREDITS' = sum(f2rscred)/
        lit36_b 'INDEPT STUDY, GRADE' = mean(f2rgrade)/
        lit36_c 'INDEPT STUDY, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230154
aggregate outfile='sys37'/ break = stu_id/
        lit37_a 'RESEARCH TECH, CREDITS' = sum(f2rscred)/
        lit37_b 'RESEARCH TECH, GRADE' = mean(f2rgrade)/
        lit37_c 'RESEARCH TECH, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230155
aggregate outfile='sys38'/ break = stu_id/
        lit38_a 'CHILD LIT, CREDITS' = sum(f2rscred)/
        lit38_b 'CHILD LIT, GRADE' = mean(f2rgrade)/
        lit38_c 'CHILD LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230156
```

```
aggregate outfile='sys39'/ break = stu_id/
        lit39_a 'VOCAT LIT, CREDITS' = sum(f2rscred)/
        lit39_b 'VOCAT LIT, GRADE' = mean(f2rgrade)/
        lit39_c 'VOCAT LIT, WHEN' = mean(f2rgrlev

temporary
select if f2rcssc = 230211
aggregate outfile='sys40'/ break = stu_id/
        lit40_a 'CLASSIC MYTH, CREDITS' = sum(f2rscred)/
        lit40_b 'CLASSIC MYTH, GRADE' = mean(f2rgrade)/
        lit40_c 'CLASSIC MYTH, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230200
aggregate outfile='sys41'/ break = stu_id/
        lit41_a 'CLASSICS OTHER, CREDITS' = sum(f2rscred)/
        lit41_b 'CLASSICS OTHER, GRADE' = mean(f2rgrade)/
        lit41_c 'CLASSICS OTHER, WHEN' = mean(f2rgrlev)
```

COMMENT PART 3
COMMENT CREATING AMERICAN LIT COURSES

```
temporary
select if f2rcssc = 230711
aggregate outfile='sys1'/ break = stu_id/
        alit1_a 'AM LIT, CREDITS' = sum(f2rscred)/
        alit1_b 'AM LIT, GRADE' = mean(f2rgrade)/
        alit1_c 'AM LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230721
aggregate outfile='sys2'/ break = stu_id/
        alit2_a 'BLACK LIT, CREDITS' = sum(f2rscred)/
        alit2_b 'BLACK LIT, GRADE' = mean(f2rgrade)/
        alit2_c 'BLACK LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230731
aggregate outfile='sys3'/ break = stu_id/
        alit3_a 'AMERICAN DREAM, CREDITS' = sum(f2rscred)/
        alit3_b 'AMERICAN DREAM, GRADE' = mean(f2rgrade)/
        alit3_c 'AMERICAN DREAM, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230751
aggregate outfile='sys4'/ break = stu_id/
        alit4_a 'INDIAN LIT, CREDITS' = sum(f2rscred)/
        alit4_b 'INDIAN LIT, GRADE' = mean(f2rgrade)/
        alit4_c 'INDIAN LIT, WHEN' = mean(f2rgrlev)
```

```
temporary
select if f2rcssc = 230761
aggregate outfile='sys5'/ break = stu_id/
        alit5_a 'STATE WRITERS, CREDITS' = sum(f2rscred)/
        alit5_b 'STATE WRITERS, GRADE' = mean(f2rgrade)/
        alit5_c 'STATE WRITERS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230771
aggregate outfile='sys6'/ break = stu_id/
        alit6_a 'WESTERN LIT, CREDITS' = sum(f2rscred)/
        alit6_b 'WESTERN LIT, GRADE' = mean(f2rgrade)/
        alit6_c 'WESTERN LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230781
aggregate outfile='sys7'/ break = stu_id/
        alit7_a 'MEX_AM LIT, CREDITS' = sum(f2rscred)/
        alit7_b 'MEX_AM LIT, GRADE' = mean(f2rgrade)/
        alit7_c 'MEX_AM LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230700
aggregate outfile='sys8'/ break = stu_id/
        alit8_a 'AM LIT, OTHER, CREDITS' = sum(f2rscred)/
        alit8_b 'AM LIT, OTHER, GRADE' = mean(f2rgrade)/
        alit8_c 'AM LIT, OTHER, WHEN' = mean(f2rgrlev)
```

COMMENT CREATING BRITISH LIT COURSES

```
temporary
select if f2rcssc = 230811
aggregate outfile='sys9'/ break = stu_id/
        blit1_a 'BRIT LIT, CREDITS' = sum(f2rscred)/
        blit1_b 'BRIT LIT, GRADE' = mean(f2rgrade)/
        blit1_c 'BRIT LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230821
aggregate outfile='sys10'/ break = stu_id/
        blit2_a 'SHAKESPEARE, CREDITS' = sum(f2rscred)/
        blit2_b 'SHAKESPEARE, GRADE' = mean(f2rgrade)/
        blit2_c 'SHAKESPEARE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230831
aggregate outfile='sys11'/ break = stu_id/
        blit3_a 'MODERN BRIT WRITERS, CREDITS' = sum(f2rscred)/
        blit3_b 'MODERN BRIT WRITERS, GRADE' = mean(f2rgrade)/
        blit3_c 'MODERN BRIT WRITERS, WHEN' = mean(f2rgrlev)
```

```
temporary
select if f2rcssc = 230851
aggregate outfile='sys12'/ break = stu_id/
        blit4_a 'MODERN BRIT SATIRE, CREDITS' = sum(f2rscred)/
        blit4_b 'MODERN BRIT SATIRE, GRADE' = mean(f2rgrade)/
        blit4_c 'MODERN BRIT SATIRE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230861
aggregate outfile='sys13'/ break = stu_id/
        blit5_a 'ARTHURIAN LEGEND, CREDITS' = sum(f2rscred)/
        blit5_b 'ARTHURIAN LEGEND, GRADE' = mean(f2rgrade)/
        blit5_c 'ARTHURIAN LEGEND, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230871
aggregate outfile='sys14'/ break = stu_id/
        blit6_a 'MEDIEVAL LIT, CREDITS' = sum(f2rscred)/
        blit6_b 'MEDIEVAL LIT, GRADE' = mean(f2rgrade)/
        blit6_c 'MEDIEVAL LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230800
aggregate outfile='sys15'/ break = stu_id/
        blit7_a 'BRIT LIT, OTHER, CREDITS' = sum(f2rscred)/
        blit7_b 'BRIT LIT, OTHER, GRADE' = mean(f2rgrade)/
        blit7_c 'BRIT LIT, OTHER, WHEN' = mean(f2rgrlev)
```

COMMENT CREATING COMP LIT COURSES

```
temporary
select if f2rcssc = 230311
aggregate outfile='sys16'/ break = stu_id/
        clit1_a 'COMP LIT, CREDITS' = sum(f2rscred)/
        clit1_b 'COMP LIT, GRADE' = mean(f2rgrade)/
        clit1_c 'COMP LIT, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230321
aggregate outfile='sys17'/ break = stu_id/
        clit2_a 'LATIN AM AUTHORS, CREDITS' = sum(f2rscred)/
        clit2_b 'LATIN AM AUTHORS, GRADE' = mean(f2rgrade)/
        clit2_c 'LATIN AM AUTHORS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230300
aggregate outfile='sys18'/ break = stu_id/
        clit3_a 'COMP LIT, OTHER, CREDITS' = sum(f2rscred)/
        clit3_b 'COMP LIT, OTHER, GRADE' = mean(f2rgrade)/
        clit3_c 'COMP LIT, OTHER, WHEN' = mean(f2rgrlev)
```

COMMENT PART 4
COMMENT CREATING SPEECH COURSES

```
temporary
select if f2rcssc = 231021
aggregate outfile='sys1'/ break = stu_id/
        spch1_a 'SPEECH 1, CREDITS' = sum(f2rscred)/
        spch1_b 'SPEECH 1, GRADE' = mean(f2rgrade)/
        spch1_c 'SPEECH 1, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231022
aggregate outfile='sys2'/ break = stu_id/
        spch2_a 'SPEECH 2, CREDITS' = sum(f2rscred)/
        spch2_b 'SPEECH 2, GRADE' = mean(f2rgrade)/
        spch2_c 'SPEECH 2, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231023
aggregate outfile='sys3'/ break = stu_id/
        spch3_a 'SPEECH 3, CREDITS' = sum(f2rscred)/
        spch3_b 'SPEECH 3, GRADE' = mean(f2rgrade)/
        spch3_c 'SPEECH 3, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231011
aggregate outfile='sys4'/ break = stu_id/
        spch4_a 'PUBLIC SPEAKING, CREDITS' = sum(f2rscred)/
        spch4_b 'PUBLIC SPEAKING, GRADE' = mean(f2rgrade)/
        spch4_c 'PUBLIC SPEAKING, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231031
aggregate outfile='sys5'/ break = stu_id/
        spch5_a 'DEBATE, CREDITS' = sum(f2rscred)/
        spch5_b 'DEBATE, GRADE' = mean(f2rgrade)/
        spch5_c 'DEBATE, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231000
aggregate outfile='sys6'/ break = stu_id/
        spch6_a 'SPEECH OTHER, CREDITS' = sum(f2rscred)/
        spch6_b 'SPEECH OTHER, GRADE' = mean(f2rgrade)/
        spch6_c 'SPEECH OTHER, WHEN' = mean(f2rgrlev)
```

COMMENT CREATING READING DEVELOPMENTAL COURSES

```
temporary
select if f2rcssc = 231211
aggregate outfile='sys7'/ break = stu_id/
        rdev1_a 'READING DEV 1, CREDITS' = sum(f2rscred)/
```

```
        rdev1_b 'READING DEV 1, GRADE' = mean(f2rgrade)/
        rdev1_c 'READING DEV 1, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231212
aggregate outfile='sys8'/ break = stu_id/
        rdev2_a 'READING DEV 2, CREDITS' = sum(f2rscred)/
        rdev2_b 'READING DEV 2, GRADE' = mean(f2rgrade)/
        rdev2_c 'READING DEV 2, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231213
aggregate outfile='sys9'/ break = stu_id/
        rdev3_a 'READING DEV 3, CREDITS' = sum(f2rscred)/
        rdev3_b 'READING DEV 3, GRADE' = mean(f2rgrade)/
        rdev3_c 'READING DEV 3, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231214
aggregate outfile='sys10'/ break = stu_id/
        rdev4_a 'READING DEV 4, CREDITS' = sum(f2rscred)/
        rdev4_b 'READING DEV 4, GRADE' = mean(f2rgrade)/
        rdev4_c 'READING DEV 4, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231215
aggregate outfile='sys11'/ break = stu_id/
        rdev5_a 'SPEED READING, CREDITS' = sum(f2rscred)/
        rdev5_b 'SPEED READING, GRADE' = mean(f2rgrade)/
        rdev5_c 'SPEED READING, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231216
aggregate outfile='sys12'/ break = stu_id/
        rdev6_a 'ADV READING, CREDITS' = sum(f2rscred)/
        rdev6_b 'ADV READING, GRADE' = mean(f2rgrade)/
        rdev6_c 'ADV READING, WHEN' = mean(f2rgrlev)
```

COMMENT CREATING FUNCTIONAL ENGLISH COURSES

```
temporary
select if f2rcssc = 231311
aggregate outfile='sys13'/ break = stu_id/
        func1_a 'FUNCTIONAL ENGL 1, CREDITS' = sum(f2rscred)/
        func1_b 'FUNCTIONAL ENGL 1, GRADE' = mean(f2rgrade)/
        func1_c 'FUNCTIONAL ENGL 1, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231312
aggregate outfile='sys14'/ break = stu_id/
        func2_a 'FUNCTIONAL ENGL 2, CREDITS' = sum(f2rscred)/
```

```
        func2_b 'FUNCTIONAL ENGL 2, GRADE' = mean(f2rgrade)/
        func2_c 'FUNCTIONAL ENGL 2, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231313
aggregate outfile='sys15'/ break = stu_id/
        func3_a 'FUNCTIONAL ENGL 3, CREDITS' = sum(f2rscred)/
        func3_b 'FUNCTIONAL ENGL 3, GRADE' = mean(f2rgrade)/
        func3_c 'FUNCTIONAL ENGL 3, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231314
aggregate outfile='sys16'/ break = stu_id/
        func4_a 'FUNCTIONAL ENGL 4, CREDITS' = sum(f2rscred)/
        func4_b 'FUNCTIONAL ENGL 4, GRADE' = mean(f2rgrade)/
        func4_c 'FUNCTIONAL ENGL 4, WHEN' = mean(f2rgrlev)
```

COMMENT CREATING OTHER ENGLISH COURSES

```
temporary
select if f2rcssc = 231111
aggregate outfile='sys17'/ break = stu_id/
        oth1_a 'TECHNICAL ENGL, CREDITS' = sum(f2rscred)/
        oth1_b 'TECHNICAL ENGL, GRADE' = mean(f2rgrade)/
        oth1_c 'TECHNICAL ENGL, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 231100
aggregate outfile='sys18'/ break = stu_id/
        oth2_a 'TECH & BUS, OTHER, CREDITS' = sum(f2rscred)/
        oth2_b 'TECH & BUS, OTHER, GRADE' = mean(f2rgrade)/
        oth2_c 'TECH * BUS, OTHER, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230900
aggregate outfile='sys19'/ break = stu_id/
        oth3_a 'RHETORIC, OTHER, CREDITS' = sum(f2rscred)/
        oth3_b 'RHETORIC, OTHER, GRADE' = mean(f2rgrade)/
        oth3_c 'RHETORIC, OTHER, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230611
aggregate outfile='sys20'/ break = stu_id/
        oth4_a 'LINGUISTICS, CREDITS' = sum(f2rscred)/
        oth4_b 'LINGUISTICS, GRADE' = mean(f2rgrade)/
        oth4_c 'LINGUISTICS, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 239900
aggregate outfile='sys21'/ break = stu_id/
        oth5_a 'LETTERS, OTHER, CREDITS' = sum(f2rscred)/
```

```
        oth5_b 'LETTERS, OTHER, GRADE' = mean(f2rgrade)/
        oth5_c 'LETTERS, OTHER, WHEN' = mean(f2rgrlev)

temporary
select if f2rcssc = 230100
aggregate outfile='sys22'/ break = stu_id/
        oth6_a 'GENERAL, OTHER, CREDITS' = sum(f2rscred)/
        oth6_b 'GENERAL, OTHER, GRADE' = mean(f2rgrade)/
        oth6_c 'GENERAL, OTHER, WHEN' = mean(f2rgrlev)
```

COMMENT PART 5
COMMENT (AFTER MERGING THE PREVIOUS FILES) CONSTRUCTING THE ENGLISH CREDIT MEASURES

```
get file = 'engcr.sys'

compute egencrd =
            sum(ENG9B_A, ENG9A_A, ENG9H_A, ENG10B_A, ENG10A_A, ENG10H_A,
            ENG11B_A, ENG11A_A, ENG11H_A, ENG12B_A, ENG12A_A, ENG12H_A)
compute compcrd =
            sum(COMP_A, WRLAB_A, WRLIT_A, VOCAB_A, SPELL_A, COMPO_A, GRAM9_A,
            GRAM10_A, GRAM11_A, GRAM12_A, CRWR10_A, CRWR11_A, CRWR12_A,
            CRWROT_A, CRWRID_A, ETYM_A, HAND_A, INTR_A, WORD_A)
compute litcrd =
            sum(LIT1_A, LIT2_A, LIT3_A, LIT4_A, LIT5_A, LIT6_A, LIT7_A,
            LIT8_A, LIT9_A, LIT10_A, LIT11_A, LIT12_A, LIT13_A, LIT14_A,
            LIT15_A, LIT16_A, LIT17_A, LIT18_A, LIT19_A, LIT20_A, LIT21_A,
            LIT22_A, LIT23_A, LIT24_A, LIT25_A, LIT26_A, LIT27_A, LIT28_A,
            LIT29_A, LIT30_A, LIT31_A, LIT32_A, LIT33_A, LIT34_A, LIT35_A,
            LIT36_A, LIT37_A, LIT38_A, LIT39_A, LIT40_A, LIT41_A, ALIT1_A,
            ALIT2_A, ALIT3_A, ALIT4_A, ALIT5_A, ALIT6_A, ALIT7_A, ALIT8_A,
            BLIT1_A, BLIT2_A, BLIT3_A, BLIT4_A, BLIT5_A, BLIT6_A, BLIT7_A,
            CLIT1_A, CLIT2_A, CLIT3_A)
compute spchcrd =
            sum(SPCH1_A, SPCH2_A, SPCH3_A, SPCH4_A, SPCH5_A, SPCH6_A)
compute edevcrd =
            sum(RDEV1_A, RDEV2_A, RDEV3_A, RDEV4_A, RDEV5_A, RDEV6_A, FUNC1_A,
            FUNC2_A, FUNC3_A, FUNC4_A)
compute eothcrd =
            sum(OTH1_A, OTH2_A, OTH3_A, OTH4_A, OTH5_A, OTH6_A)

compute engcrd = sum(egencrd, compcrd, litcrd, spchcrd, edevcrd, eothcrd)

var labels
            egencrd 'General English credits'/ compcrd 'Composition credits'/
            litcrd 'Literature credits'/ spchcrd 'Speech credits'/
            edevcrd 'Developmental/Functional English credits'/
            eothcrd 'Other English credits' / engcrd 'Total English credits'

compute honcrd=sum(eng9h_a, eng10h_a, eng11h_a, eng12h_a)
compute avecrd = sum(eng9a_a, eng10a_a, eng11a_a, eng12a_a)
```

```
compute belcrd=sum(eng9b_a, eng10b_a, eng11b_a, eng12b_a)
compute av_crd = sum(avecrd, compcrd, litcrd, spchcrd, eothcrd)
compute be_crd = sum(belcrd, edevcrd)

var labels honcrd 'engl crds, general honors'/
            avecrd 'engl crds, general average'/
            belcrd 'engl crds, general below'/
            av_crd 'engl crds, gen ave ++++'/
            be_crd 'engl crds, gen below + dev/func'
```

COMMENT CREATING THE (CONTINUOUS AND CATEGORICAL) PERCENTAGE MEASURES

```
do if engcrd ne 0
compute phoncrd = honcrd/engcrd
compute pavecrd = avecrd/engcrd
compute pav_crd = av_crd/engcrd
compute pbe_crd = be_crd/engcrd
end if

var labels phoncrd 'percent: gen honors credits'/
            pavecrd 'percent: gen average credits'/
            pav_crd 'percent: gen ave ++++ credits'/
            pbe_crd 'percent: gen below + dev/func credits'

do if engcrd NE 0 and not missing(epipe1)
recode phoncrd pavecrd pav_crd pbe_crd (sysmis = 0)
end if

recode phoncrd pavecrd pav_crd pbe_crd
            (0=1)(.75 thru 1.0=5)(.50 thru .75=4)(.25 thru .50=3)
            (0 thru .25=2) into
            phoncrd5 pavecrd5 pav_crd5 pbe_crd5

var labels phoncrd5 '% gen honors credits, 5-level'/
            pavecrd5 '% gen average credits, 5-level'/
            pav_crd5 '% gen average ++++ credits, 5-level'/
            pbe_crd5 '% gen below + dev/func credits, 5-level'/

val labels phoncrd5 pavecrd5 pav_crd5 pbe_crd5
            (1)"0" (2)"(0, .25)" (3)"[.25, .50)" (4)"[.50, .75)"
            (5)"[.75, 1.0]"
```

COMMENT CREATING THE ENGLISH COURSE QUALITY PATTERNS

```
do if phoncrd5=5
compute newpipe2=7
else if phoncrd5=4
compute newpipe2=6
else if pbe_crd5=5
compute newpipe2=1
```

```
else if pbe_crd5=4
compute newpipe2=2
else if phoncrd5 NE 1 and pbe_crd5=1
compute newpipe2=5
else if phoncrd5=1 and pbe_crd5 NE 1
compute newpipe2=3
else
compute newpipe2=4
end if

var labels newpipe2 "english pipeline, based on percents, ver 2"
val labels newpipe2 (1)"75+_low" (2)"50+_low" (7)"75+_hon" (6)"50+_hon"
        (5)"H, no L" (3)"L, no H" (4)"other"
```

COMMENT CREATING ENGLISH COURSE GRADE MEASURES

```
compute honpts =
        sum(eng9h_a*eng9h_b, eng10h_a*eng10h_b, eng11h_a*eng11h_b, eng12h_a*eng12h_b)

do if honcrd NE 0
compute hongrds = honpts/honcrd
else if honcrd=0
compute hongrds=0
end if

var labels honpts 'honors-level english courses, grade-points'/
        hongrds 'honors-level english, average grades'

compute lowpts=
        sum(eng9b_a*eng9b_b, eng10b_a*eng10b_b, eng11b_a*eng11b_b, eng12b_a*eng12b_b,
        RDEV1_A*rdev1_b, RDEV2_A*rdev2_b, RDEV3_A*rdev3_b, RDEV4_A*rdev4_b,
        RDEV5_A*rdev5_b, RDEV6_A*rdev6_b, FUNC1_A*func1_b, FUNC2_A*func2_b,
        FUNC3_A*func3_b, FUNC4_A*func4_b)

do if be_crd NE 0
compute lowgrds = lowpts/be_crd
else if be_crd=0
compute lowgrds=0
end if

var labels lowpts 'below-level english courses, grade points'/
        lowgrds 'below-level english, average grades'

compute regpts =
        sum(eng9a_a*eng9a_b, eng10a_a*eng10a_b, eng11a_a*eng11a_b, eng12a_a*eng12a_b,
        SPELL_A*spell_b, COMPO_A*compo_b, GRAM9_A*gram9_b, GRAM10_A*gram10_b,
        GRAM11_A*gram11_b, GRAM12_A*gram12_b, CRWR10_A*crwr10_b,
        CRWR11_A*crwr11_b,
        CRWR12_A*crwr12_b, CRWROT_A*crwrot_b, CRWRID_A*crwrid_b, ETYM_A*etym_b,
        HAND_A*hand_b, INTR_A*intr_b, WORD_A*word_b, LIT1_A*lit1_b,
        LIT2_A*lit2_b, LIT3_A*lit3_b, LIT4_A*lit4_b, LIT5_A*lit5_b,
```

```
        LIT6_A*lit6_b, LIT7_A*lit7_b, LIT8_A*lit8_b, LIT9_A*lit9_b,
        LIT10_A*lit10_b, LIT11_A*lit11_b, LIT12_A*lit12_b, LIT13_A*lit13_b,
        LIT14_A*lit14_b, LIT15_A*lit15_b, LIT16_A*lit16_b, LIT17_A*lit17_b,
        LIT18_A*lit18_b, LIT19_A*lit19_b, LIT20_A*lit20_b, LIT21_A*lit21_b,
        LIT22_A*lit22_b, LIT23_A*lit23_b, LIT24_A*lit24_b, LIT25_A*lit25_b,
        LIT26_A*lit26_b, LIT27_A*lit27_b, LIT28_A*lit28_b, LIT29_A*lit29_b,
        LIT30_A*lit30_b, LIT31_A*lit31_b, LIT32_A*lit32_b, LIT33_A*lit33_b,
        LIT34_A*lit34_b, LIT35_A*lit35_b, LIT36_A*lit36_b, LIT37_A*lit37_b,
        LIT38_A*lit38_b, LIT39_A*lit39_b, LIT40_A*lit40_b, LIT41_A*lit41_b,
        ALIT1_A*alit1_b, ALIT2_A*alit2_b, ALIT3_A*alit3_b, ALIT4_A*alit4_b,
        ALIT5_A*alit5_b, ALIT6_A*alit6_b, ALIT7_A*alit7_b, ALIT8_A*alit8_b,
        BLIT1_A*blit1_b, BLIT2_A*blit2_b, BLIT3_A*blit3_b, BLIT4_A*blit4_b,
        BLIT5_A*blit5_b, BLIT6_A*blit6_b, BLIT7_A*blit7_b, CLIT1_A*clit1_b,
        CLIT2_A*clit2_b, CLIT3_A*clit3_b, SPCH1_A*spch1_b, SPCH2_A*spch2_b,
        SPCH3_A*spch3_b, SPCH4_A*spch4_b, SPCH5_A*spch5_b, SPCH6_A*spch6_b,
        OTH1_A*oth1_b, OTH2_A*oth2_b, OTH3_A*oth3_b, OTH4_A*oth4_b,
        OTH5_A*oth5_b, OTH6_A*oth6_b)

do if av_crd NE 0
compute reggrds = regpts/av_crd
else if av_crd=0
compute reggrds=0
end if

var labels regpts 'regular-level english courses, grade points'/
        reggrds 'regular-level english, average grades'
```

Listing of NCES Working Papers to Date

Working papers can be downloaded as .pdf files from the NCES Electronic Catalog (*http://nces.ed.gov/pubsearch/*). You can also contact Sheilah Jupiter at (202) 502–7444 (*sheilah.jupiter@ed.gov*) if you are interested in any of the following papers.

Listing of NCES Working Papers by Program Area

No.	Title	NCES contact
Baccalaureate and Beyond (B&B)		
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2001–15	Baccalaureate and Beyond Longitudinal Study: 2000/01 Follow-Up Field Test Methodology Report	Andrew G. Malizio
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
Beginning Postsecondary Students (BPS) Longitudinal Study		
98–11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999–15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
2001–04	Beginning Postsecondary Students Longitudinal Study: 1996–2001 (BPS:1996/2001) Field Test Methodology Report	Paula Knepper
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
Common Core of Data (CCD)		
95–12	Rural Education Data User's Guide	Samuel Peng
96–19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
97–15	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97–43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999–03	Evaluation of the 1996–97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
2000–12	Coverage Evaluation of the 1994–95 Common Core of Data: Public Elementary/Secondary School Universe Survey	Beth Young
2000–13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber
2002–02	School Locale Codes 1987 - 2000	Frank Johnson
Data Development		
2000–16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000–16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Decennial Census School District Project		
95–12	Rural Education Data User's Guide	Samuel Peng
96–04	Census Mapping Project/School District Data Book	Tai Phan
98–07	Decennial Census School District Project Planning Report	Tai Phan
Early Childhood Longitudinal Study (ECLS)		
96–08	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96–18	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
97–24	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97–36	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West
1999–01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
2001–02	Measuring Father Involvement in Young Children's Lives: Recommendations for a Fatherhood Module for the ECLS-B	Jerry West
2001–03	Measures of Socio-Emotional Development in Middle Childhood	Elvira Hausken

No.	Title	NCES contact
2001–06	Papers from the Early Childhood Longitudinal Studies Program: Presented at the 2001 AERA and SRCD Meetings	Jerry West
2002-05	Early Childhood Longitudinal Study-Kindergarten Class of 1998–99 (ECLS–K), Psychometric Report for Kindergarten Through First Grade	Elvira Hausken
Education Finance Statistics Center (EDFIN)		
94–05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
96–19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
97–43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98–04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
1999–16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
High School and Beyond (HS&B)		
95–12	Rural Education Data User's Guide	Samuel Peng
1999–05	Procedures Guide for Transcript Studies	Dawn Nelson
1999–06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
HS Transcript Studies		
1999–05	Procedures Guide for Transcript Studies	Dawn Nelson
1999–06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
2003–01	Mathematics, Foreign Language, and Science Coursetaking and the NELS:88 Transcript Data	Jeffrey Owings
2003–02	English Coursetaking and the NELS:88 Transcript Data	Jeffrey Owings
International Adult Literacy Survey (IALS)		
97–33	Adult Literacy: An International Perspective	Marilyn Binkley
Integrated Postsecondary Education Data System (IPEDS)		
97–27	Pilot Test of IPEDS Finance Survey	Peter Stowe
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000–14	IPEDS Finance Data Comparisons Under the 1997 Financial Accounting Standards for Private, Not-for-Profit Institutes: A Concept Paper	Peter Stowe
National Assessment of Adult Literacy (NAAL)		
98–17	Developing the National Assessment of Adult Literacy: Recommendations from Stakeholders	Sheida White
1999–09a	1992 National Adult Literacy Survey: An Overview	Alex Sedlacek
1999–09b	1992 National Adult Literacy Survey: Sample Design	Alex Sedlacek
1999–09c	1992 National Adult Literacy Survey: Weighting and Population Estimates	Alex Sedlacek
1999–09d	1992 National Adult Literacy Survey: Development of the Survey Instruments	Alex Sedlacek
1999–09e	1992 National Adult Literacy Survey: Scaling and Proficiency Estimates	Alex Sedlacek
1999–09f	1992 National Adult Literacy Survey: Interpreting the Adult Literacy Scales and Literacy Levels	Alex Sedlacek
1999–09g	1992 National Adult Literacy Survey: Literacy Levels and the Response Probability Convention	Alex Sedlacek
2000–05	Secondary Statistical Modeling With the National Assessment of Adult Literacy: Implications for the Design of the Background Questionnaire	Sheida White
2000–06	Using Telephone and Mail Surveys as a Supplement or Alternative to Door-to-Door Surveys in the Assessment of Adult Literacy	Sheida White
2000–07	"How Much Literacy is Enough?" Issues in Defining and Reporting Performance Standards for the National Assessment of Adult Literacy	Sheida White
2000–08	Evaluation of the 1992 NALS Background Survey Questionnaire: An Analysis of Uses with Recommendations for Revisions	Sheida White
2000–09	Demographic Changes and Literacy Development in a Decade	Sheida White
2001–08	Assessing the Lexile Framework: Results of a Panel Meeting	Sheida White

No.	Title	NCES contact
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
National Assessment of Educational Progress (NAEP)		
95–12	Rural Education Data User's Guide	Samuel Peng
97–29	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Steven Gorman
97–30	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Steven Gorman
97–31	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Steven Gorman
97–32	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questionnaires)	Steven Gorman
97–37	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Steven Gorman
97–44	Development of a SASS 1993–94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999–05	Procedures Guide for Transcript Studies	Dawn Nelson
1999–06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
2001–08	Assessing the Lexile Framework: Results of a Panel Meeting	Sheida White
2001–11	Impact of Selected Background Variables on Students' NAEP Math Performance	Arnold Goldstein
2001–13	The Effects of Accommodations on the Assessment of LEP Students in NAEP	Arnold Goldstein
2001–19	The Measurement of Home Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Graders to Questionnaire Items and Parental Assessment of the Invasiveness of These Items	Arnold Goldstein
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
2002-06	The Measurement of Instructional Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Grade Students and Teachers to Questionnaire Items	Arnold Goldstein
2002–07	Teacher Quality, School Context, and Student Race/Ethnicity: Findings from the Eighth Grade National Assessment of Educational Progress 2000 Mathematics Assessment	Janis Brown
National Education Longitudinal Study of 1988 (NELS:88)		
95–04	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95–05	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings
95–06	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95–07	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95–12	Rural Education Data User's Guide	Samuel Peng
95–14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
96–03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
98–06	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98–09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999–05	Procedures Guide for Transcript Studies	Dawn Nelson
1999–06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
1999–15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
2001–16	Imputation of Test Scores in the National Education Longitudinal Study of 1988	Ralph Lee

No.	Title	NCES contact
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
2003–01	Mathematics, Foreign Language, and Science Coursetaking and the NELS:88 Transcript Data	Jeffrey Owings
2003–02	English Coursetaking and the NELS:88 Transcript Data	Jeffrey Owings
National Household Education Survey (NHES)		
95–12	Rural Education Data User's Guide	Samuel Peng
96–13	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96–14	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman
96–20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96–21	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96–22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96–29	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96–30	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97–02	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97–03	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97–04	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97–05	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97–06	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97–08	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler
97–19	National Household Education Survey of 1995: Adult Education Course Coding Manual	Peter Stowe
97–20	National Household Education Survey of 1995: Adult Education Course Code Merge Files User's Guide	Peter Stowe
97–25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
97–28	Comparison of Estimates in the 1996 National Household Education Survey	Kathryn Chandler
97–34	Comparison of Estimates from the 1993 National Household Education Survey	Kathryn Chandler
97–35	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
97–38	Reinterview Results for the Parent and Youth Components of the 1996 National Household Education Survey	Kathryn Chandler
97–39	Undercoverage Bias in Estimates of Characteristics of Households and Adults in the 1996 National Household Education Survey	Kathryn Chandler
97–40	Unit and Item Response Rates, Weighting, and Imputation Procedures in the 1996 National Household Education Survey	Kathryn Chandler
98–03	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98–10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
National Longitudinal Study of the High School Class of 1972 (NLS-72)		
95–12	Rural Education Data User's Guide	Samuel Peng
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
National Postsecondary Student Aid Study (NPSAS)		
96–17	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
2000–17	National Postsecondary Student Aid Study:2000 Field Test Methodology Report	Andrew G. Malizio

No.	Title	NCES contact
2002–03	National Postsecondary Student Aid Study, 1999–2000 (NPSAS:2000), CATI Nonresponse Bias Analysis Report.	Andrew Malizio
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
National Study of Postsecondary Faculty (NSOPF)		
97–26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000–01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
2002–08	A Profile of Part-time Faculty: Fall 1998	Linda Zimbler
Postsecondary Education Descriptive Analysis Reports (PEDAR)		
2000–11	Financial Aid Profile of Graduate Students in Science and Engineering	Aurora D'Amico
Private School Universe Survey (PSS)		
95–16	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95–17	Estimates of Expenditures for Private K–12 Schools	Stephen Broughman
96–16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96–26	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96–27	Intersurvey Consistency in NCES Private School Surveys for 1993–94	Steven Kaufman
97–07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97–22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
2000–15	Feasibility Report: School-Level Finance Pretest, Private School Questionnaire	Stephen Broughman
Recent College Graduates (RCG)		
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
Schools and Staffing Survey (SASS)		
94–01	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94–02	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94–03	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94–04	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94–06	Six Papers on Teachers from the 1990–91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
95–01	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95–02	QED Estimates of the 1990–91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95–03	Schools and Staffing Survey: 1990–91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95–08	CCD Adjustment to the 1990–91 SASS: A Comparison of Estimates	Dan Kasprzyk
95–09	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95–10	The Results of the 1991–92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk
95–11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95–12	Rural Education Data User's Guide	Samuel Peng
95–14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95–15	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95–16	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95–18	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk

No.	Title	NCES contact
96–01	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk
96–02	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96–05	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96–06	The Schools and Staffing Survey (SASS) for 1998–99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96–07	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96–09	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998–99 SASS	Dan Kasprzyk
96–10	1998–99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96–11	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96–12	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96–15	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96–23	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96–24	National Assessments of Teacher Quality	Dan Kasprzyk
96–25	Measures of Inservice Professional Development: Suggested Items for the 1998–1999 Schools and Staffing Survey	Dan Kasprzyk
96–28	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
97–01	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97–07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97–09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97–10	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993–94 School Year	Dan Kasprzyk
97–11	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97–12	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97–14	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97–18	Improving the Mail Return Rates of SASS Surveys: A Review of the Literature	Steven Kaufman
97–22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
97–23	Further Cognitive Research on the Schools and Staffing Survey (SASS) Teacher Listing Form	Dan Kasprzyk
97–41	Selected Papers on the Schools and Staffing Survey: Papers Presented at the 1997 Meeting of the American Statistical Association	Steve Kaufman
97–42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
97–44	Development of a SASS 1993–94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98–01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
98–02	Response Variance in the 1993–94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
98–04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
98–05	SASS Documentation: 1993–94 SASS Student Sampling Problems; Solutions for Determining the Numerators for the SASS Private School (3B) Second-Stage Factors	Steven Kaufman
98–08	The Redesign of the Schools and Staffing Survey for 1999–2000: A Position Paper	Dan Kasprzyk
98–12	A Bootstrap Variance Estimator for Systematic PPS Sampling	Steven Kaufman
98–13	Response Variance in the 1994–95 Teacher Follow-up Survey	Steven Kaufman
98–14	Variance Estimation of Imputed Survey Data	Steven Kaufman
98–15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
98–16	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey	Stephen Broughman
1999–02	Tracking Secondary Use of the Schools and Staffing Survey Data: Preliminary Results	Dan Kasprzyk
1999–04	Measuring Teacher Qualifications	Dan Kasprzyk
1999–07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999–08	Measuring Classroom Instructional Processes: Using Survey and Case Study Fieldtest Results to Improve Item Construction	Dan Kasprzyk
1999–10	What Users Say About Schools and Staffing Survey Publications	Dan Kasprzyk

No.	Title	NCES contact
1999–12	1993–94 Schools and Staffing Survey: Data File User's Manual, Volume III: Public-Use Codebook	Kerry Gruber
1999–13	1993–94 Schools and Staffing Survey: Data File User's Manual, Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebook	Kerry Gruber
1999–14	1994–95 Teacher Followup Survey: Data File User's Manual, Restricted-Use Codebook	Kerry Gruber
1999–17	Secondary Use of the Schools and Staffing Survey Data	Susan Wiley
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
2000–10	A Research Agenda for the 1999–2000 Schools and Staffing Survey	Dan Kasprzyk
2000–13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber
2000–18	Feasibility Report: School-Level Finance Pretest, Public School District Questionnaire	Stephen Broughman
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
Third International Mathematics and Science Study (TIMSS)		
2001–01	Cross-National Variation in Educational Preparation for Adulthood: From Early Adolescence to Young Adulthood	Elvira Hausken
2001–05	Using TIMSS to Analyze Correlates of Performance Variation in Mathematics	Patrick Gonzales
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
2002–01	Legal and Ethical Issues in the Use of Video in Education Research	Patrick Gonzales

Listing of NCES Working Papers by Subject

No.	Title	NCES contact
Achievement (student) - mathematics		
2001–05	Using TIMSS to Analyze Correlates of Performance Variation in Mathematics	Patrick Gonzales
Adult education		
96–14	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman
96–20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96–22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
98–03	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98–10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
1999–11	Data Sources on Lifelong Learning Available from the National Center for Education Statistics	Lisa Hudson
2000–16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000–16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Adult literacy—see Literacy of adults		
American Indian – education		
1999–13	1993–94 Schools and Staffing Survey: Data File User's Manual, Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebook	Kerry Gruber
Assessment/achievement		
95–12	Rural Education Data User's Guide	Samuel Peng
95–13	Assessing Students with Disabilities and Limited English Proficiency	James Houser
97–29	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Larry Ogle
97–30	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Larry Ogle
97–31	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Larry Ogle
97–32	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questions)	Larry Ogle
97–37	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Larry Ogle
97–44	Development of a SASS 1993–94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98–09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
2001–11	Impact of Selected Background Variables on Students' NAEP Math Performance	Arnold Goldstein
2001–13	The Effects of Accommodations on the Assessment of LEP Students in NAEP	Arnold Goldstein
2001–19	The Measurement of Home Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Graders to Questionnaire Items and Parental Assessment of the Invasiveness of These Items	Arnold Goldstein
2002-05	Early Childhood Longitudinal Study-Kindergarten Class of 1998–99 (ECLS–K), Psychometric Report for Kindergarten Through First Grade	Elvira Hausken

No.	Title	NCES contact
2002-06	The Measurement of Instructional Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Grade Students and Teachers to Questionnaire Items	Arnold Goldstein
2002-07	Teacher Quality, School Context, and Student Race/Ethnicity: Findings from the Eighth Grade National Assessment of Educational Progress 2000 Mathematics Assessment	Janis Brown
Beginning students in postsecondary education		
98–11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
2001–04	Beginning Postsecondary Students Longitudinal Study: 1996–2001 (BPS:1996/2001) Field Test Methodology Report	Paula Knepper
Civic participation		
97–25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
Climate of schools		
95–14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
Cost of education indices		
94–05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
Course-taking		
95–12	Rural Education Data User's Guide	Samuel Peng
98–09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
1999–05	Procedures Guide for Transcript Studies	Dawn Nelson
1999–06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
2003–01	Mathematics, Foreign Language, and Science Coursetaking and the NELS:88 Transcript Data	Jeffrey Owings
2003–02	English Coursetaking and the NELS:88 Transcript Data	Jeffrey Owings
Crime		
97–09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
Curriculum		
95–11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
98–09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
Customer service		
1999–10	What Users Say About Schools and Staffing Survey Publications	Dan Kasprzyk
2000–02	Coordinating NCES Surveys: Options, Issues, Challenges, and Next Steps	Valena Plisko
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Data quality		
97–13	Improving Data Quality in NCES: Database-to-Report Process	Susan Ahmed
2001–11	Impact of Selected Background Variables on Students' NAEP Math Performance	Arnold Goldstein
2001–13	The Effects of Accommodations on the Assessment of LEP Students in NAEP	Arnold Goldstein
2001–19	The Measurement of Home Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Graders to Questionnaire Items and Parental Assessment of the Invasiveness of These Items	Arnold Goldstein

No.	Title	NCES contact
2002-06	The Measurement of Instructional Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Grade Students and Teachers to Questionnaire Items	Arnold Goldstein
Data warehouse		
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Design effects		
2000–03	Strengths and Limitations of Using SUDAAN, Stata, and WesVarPC for Computing Variances from NCES Data Sets	Ralph Lee
Dropout rates, high school		
95–07	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
Early childhood education		
96–20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96–22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
97–24	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97–36	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West
1999–01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
2001–02	Measuring Father Involvement in Young Children's Lives: Recommendations for a Fatherhood Module for the ECLS-B	Jerry West
2001–03	Measures of Socio-Emotional Development in Middle School	Elvira Hausken
2001–06	Papers from the Early Childhood Longitudinal Studies Program: Presented at the 2001 AERA and SRCD Meetings	Jerry West
2002-05	Early Childhood Longitudinal Study-Kindergarten Class of 1998–99 (ECLS–K), Psychometric Report for Kindergarten Through First Grade	Elvira Hausken
Educational attainment		
98–11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
2001–15	Baccalaureate and Beyond Longitudinal Study: 2000/01 Follow-Up Field Test Methodology Report	Andrew G. Malizio
Educational research		
2000–02	Coordinating NCES Surveys: Options, Issues, Challenges, and Next Steps	Valena Plisko
2002–01	Legal and Ethical Issues in the Use of Video in Education Research	Patrick Gonzales
Eighth-graders		
2001–05	Using TIMSS to Analyze Correlates of Performance Variation in Mathematics	Patrick Gonzales
2002-07	Teacher Quality, School Context, and Student Race/Ethnicity: Findings from the Eighth Grade National Assessment of Educational Progress 2000 Mathematics Assessment	Janis Brown
Employment		
96–03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
98–11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
2000–16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000–16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
2001–01	Cross-National Variation in Educational Preparation for Adulthood: From Early Adolescence to Young Adulthood	Elvira Hausken
Employment – after college		

No.	Title	NCES contact
2001–15	Baccalaureate and Beyond Longitudinal Study: 2000/01 Follow-Up Field Test Methodology Report	Andrew G. Malizio
Engineering		
2000–11	Financial Aid Profile of Graduate Students in Science and Engineering	Aurora D'Amico
Enrollment – after college		
2001–15	Baccalaureate and Beyond Longitudinal Study: 2000/01 Follow-Up Field Test Methodology Report	Andrew G. Malizio
Faculty – higher education		
97–26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
2000–01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
2002–08	A Profile of Part-time Faculty: Fall 1998	Linda Zimbler
Fathers – role in education		
2001–02	Measuring Father Involvement in Young Children's Lives: Recommendations for a Fatherhood Module for the ECLS-B	Jerry West
Finance – elementary and secondary schools		
94–05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
96–19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
98–01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
1999–07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999–16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
2000–18	Feasibility Report: School-Level Finance Pretest, Public School District Questionnaire	Stephen Broughman
Finance – postsecondary		
97–27	Pilot Test of IPEDS Finance Survey	Peter Stowe
2000–14	IPEDS Finance Data Comparisons Under the 1997 Financial Accounting Standards for Private, Not-for-Profit Institutes: A Concept Paper	Peter Stowe
Finance – private schools		
95–17	Estimates of Expenditures for Private K–12 Schools	Stephen Broughman
96–16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
97–07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97–22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
1999–07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
2000–15	Feasibility Report: School-Level Finance Pretest, Private School Questionnaire	Stephen Broughman
Geography		
98–04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
Graduate students		
2000–11	Financial Aid Profile of Graduate Students in Science and Engineering	Aurora D'Amico
Graduates of postsecondary education		
2001–15	Baccalaureate and Beyond Longitudinal Study: 2000/01 Follow-Up Field Test Methodology Report	Andrew G. Malizio
Imputation		
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meeting	Dan Kasprzyk
2001–10	Comparison of Proc Impute and Schafer's Multiple Imputation Software	Sam Peng
2001–16	Imputation of Test Scores in the National Education Longitudinal Study of 1988	Ralph Lee
2001–17	A Study of Imputation Algorithms	Ralph Lee
2001–18	A Study of Variance Estimation Methods	Ralph Lee

No.	Title	NCES contact
Inflation		
97–43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
Institution data		
2000–01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
Instructional resources and practices		
95–11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
1999–08	Measuring Classroom Instructional Processes: Using Survey and Case Study Field Test Results to Improve Item Construction	Dan Kasprzyk
International comparisons		
97–11	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97–16	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns
97–17	International Education Expenditure Comparability Study: Final Report, Volume II, Quantitative Analysis of Expenditure Comparability	Shelley Burns
2001–01	Cross-National Variation in Educational Preparation for Adulthood: From Early Adolescence to Young Adulthood	Elvira Hausken
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
International comparisons – math and science achievement		
2001–05	Using TIMSS to Analyze Correlates of Performance Variation in Mathematics	Patrick Gonzales
Libraries		
94–07	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
97–25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
Limited English Proficiency		
95–13	Assessing Students with Disabilities and Limited English Proficiency	James Houser
2001–11	Impact of Selected Background Variables on Students' NAEP Math Performance	Arnold Goldstein
2001–13	The Effects of Accommodations on the Assessment of LEP Students in NAEP	Arnold Goldstein
Literacy of adults		
98–17	Developing the National Assessment of Adult Literacy: Recommendations from Stakeholders	Sheida White
1999–09a	1992 National Adult Literacy Survey: An Overview	Alex Sedlacek
1999–09b	1992 National Adult Literacy Survey: Sample Design	Alex Sedlacek
1999–09c	1992 National Adult Literacy Survey: Weighting and Population Estimates	Alex Sedlacek
1999–09d	1992 National Adult Literacy Survey: Development of the Survey Instruments	Alex Sedlacek
1999–09e	1992 National Adult Literacy Survey: Scaling and Proficiency Estimates	Alex Sedlacek
1999–09f	1992 National Adult Literacy Survey: Interpreting the Adult Literacy Scales and Literacy Levels	Alex Sedlacek
1999–09g	1992 National Adult Literacy Survey: Literacy Levels and the Response Probability Convention	Alex Sedlacek
1999–11	Data Sources on Lifelong Learning Available from the National Center for Education Statistics	Lisa Hudson
2000–05	Secondary Statistical Modeling With the National Assessment of Adult Literacy: Implications for the Design of the Background Questionnaire	Sheida White
2000–06	Using Telephone and Mail Surveys as a Supplement or Alternative to Door-to-Door Surveys in the Assessment of Adult Literacy	Sheida White
2000–07	"How Much Literacy is Enough?" Issues in Defining and Reporting Performance Standards for the National Assessment of Adult Literacy	Sheida White
2000–08	Evaluation of the 1992 NALS Background Survey Questionnaire: An Analysis of Uses with Recommendations for Revisions	Sheida White

No.	Title	NCES contact
2000–09	Demographic Changes and Literacy Development in a Decade	Sheida White
2001–08	Assessing the Lexile Framework: Results of a Panel Meeting	Sheida White
Literacy of adults – international		
97–33	Adult Literacy: An International Perspective	Marilyn Binkley
Mathematics		
98–09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
1999–08	Measuring Classroom Instructional Processes: Using Survey and Case Study Field Test Results to Improve Item Construction	Dan Kasprzyk
2001–05	Using TIMSS to Analyze Correlates of Performance Variation in Mathematics	Patrick Gonzales
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
2001–11	Impact of Selected Background Variables on Students' NAEP Math Performance	Arnold Goldstein
2002-06	The Measurement of Instructional Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Grade Students and Teachers to Questionnaire Items	Arnold Goldstein
2002-07	Teacher Quality, School Context, and Student Race/Ethnicity: Findings from the Eighth Grade National Assessment of Educational Progress 2000 Mathematics Assessment	Janis Brown
Parental involvement in education		
96–03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
97–25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
1999–01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
2001–06	Papers from the Early Childhood Longitudinal Studies Program: Presented at the 2001 AERA and SRCD Meetings	Jerry West
2001–19	The Measurement of Home Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Graders to Questionnaire Items and Parental Assessment of the Invasiveness of These Items	Arnold Goldstein
Participation rates		
98–10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
Postsecondary education		
1999–11	Data Sources on Lifelong Learning Available from the National Center for Education Statistics	Lisa Hudson
2000–16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000–16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Postsecondary education – persistence and attainment		
98–11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
1999–15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
Postsecondary education – staff		
97–26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
2000–01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
2002–08	A Profile of Part-time Faculty: Fall 1998	Linda Zimbler
Principals		
2000–10	A Research Agenda for the 1999–2000 Schools and Staffing Survey	Dan Kasprzyk
Private schools		
96–16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman

No.	Title	NCES contact
97–07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97–22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
2000–13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber
2000–15	Feasibility Report: School-Level Finance Pretest, Private School Questionnaire	Stephen Broughman
Projections of education statistics		
1999–15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
Public school finance		
1999–16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
2000–18	Feasibility Report: School-Level Finance Pretest, Public School District Questionnaire	Stephen Broughman
Public schools		
97–43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98–01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
98–04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
1999–02	Tracking Secondary Use of the Schools and Staffing Survey Data: Preliminary Results	Dan Kasprzyk
2000–12	Coverage Evaluation of the 1994–95 Public Elementary/Secondary School Universe Survey	Beth Young
2000–13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber
2002–02	Locale Codes 1987 - 2000	Frank Johnson
Public schools – secondary		
98–09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
Reform, educational		
96–03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
Response rates		
98–02	Response Variance in the 1993–94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
School districts		
2000–10	A Research Agenda for the 1999–2000 Schools and Staffing Survey	Dan Kasprzyk
School districts, public		
98–07	Decennial Census School District Project Planning Report	Tai Phan
1999–03	Evaluation of the 1996–97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
School districts, public – demographics of		
96–04	Census Mapping Project/School District Data Book	Tai Phan
Schools		
97–42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
98–08	The Redesign of the Schools and Staffing Survey for 1999–2000: A Position Paper	Dan Kasprzyk
1999–03	Evaluation of the 1996–97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
2000–10	A Research Agenda for the 1999–2000 Schools and Staffing Survey	Dan Kasprzyk
2002–02	Locale Codes 1987 – 2000	Frank Johnson
2002-07	Teacher Quality, School Context, and Student Race/Ethnicity: Findings from the Eighth Grade National Assessment of Educational Progress 2000 Mathematics Assessment	Janis Brown

No.	Title	NCES contact
Schools – safety and discipline		
97–09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
Science		
2000–11	Financial Aid Profile of Graduate Students in Science and Engineering	Aurora D'Amico
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
Software evaluation		
2000–03	Strengths and Limitations of Using SUDAAN, Stata, and WesVarPC for Computing Variances from NCES Data Sets	Ralph Lee
Staff		
97–42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
98–08	The Redesign of the Schools and Staffing Survey for 1999–2000: A Position Paper	Dan Kasprzyk
Staff – higher education institutions		
97–26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
2002–08	A Profile of Part-time Faculty: Fall 1998	Linda Zimbler
Staff – nonprofessional		
2000–13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber
State		
1999–03	Evaluation of the 1996–97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
Statistical methodology		
97–21	Statistics for Policymakers or Everything You Wanted to Know About Statistics But Thought You Could Never Understand	Susan Ahmed
Statistical standards and methodology		
2001–05	Using TIMSS to Analyze Correlates of Performance Variation in Mathematics	Patrick Gonzales
2002–04	Improving Consistency of Response Categories Across NCES Surveys	Marilyn Seastrom
Students with disabilities		
95–13	Assessing Students with Disabilities and Limited English Proficiency	James Houser
2001–13	The Effects of Accommodations on the Assessment of LEP Students in NAEP	Arnold Goldstein
Survey methodology		
96–17	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
97–15	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97–35	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
98–06	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98–11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
98–16	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey	Stephen Broughman
1999–07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999–17	Secondary Use of the Schools and Staffing Survey Data	Susan Wiley
2000–01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
2000–02	Coordinating NCES Surveys: Options, Issues, Challenges, and Next Steps	Valena Plisko
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
2000–12	Coverage Evaluation of the 1994–95 Public Elementary/Secondary School Universe Survey	Beth Young
2000–17	National Postsecondary Student Aid Study:2000 Field Test Methodology Report	Andrew G. Malizio

No.	Title	NCES contact
2001–04	Beginning Postsecondary Students Longitudinal Study: 1996–2001 (BPS:1996/2001) Field Test Methodology Report	Paula Knepper
2001–07	A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)	Arnold Goldstein
2001–11	Impact of Selected Background Variables on Students' NAEP Math Performance	Arnold Goldstein
2001–13	The Effects of Accommodations on the Assessment of LEP Students in NAEP	Arnold Goldstein
2001–19	The Measurement of Home Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Graders to Questionnaire Items and Parental Assessment of the Invasiveness of These Items	Arnold Goldstein
2002–01	Legal and Ethical Issues in the Use of Video in Education Research	Patrick Gonzales
2002–02	Locale Codes 1987 - 2000	Frank Johnson
2002–03	National Postsecondary Student Aid Study, 1999–2000 (NPSAS:2000), CATI Nonresponse Bias Analysis Report.	Andrew Malizio
2002-06	The Measurement of Instructional Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Grade Students and Teachers to Questionnaire Items	Arnold Goldstein
Teachers		
98–13	Response Variance in the 1994–95 Teacher Follow-up Survey	Steven Kaufman
1999–14	1994–95 Teacher Followup Survey: Data File User's Manual, Restricted-Use Codebook	Kerry Gruber
2000–10	A Research Agenda for the 1999–2000 Schools and Staffing Survey	Dan Kasprzyk
2002-07	Teacher Quality, School Context, and Student Race/Ethnicity: Findings from the Eighth Grade National Assessment of Educational Progress 2000 Mathematics Assessment	Janis Brown
Teachers – instructional practices of		
98–08	The Redesign of the Schools and Staffing Survey for 1999–2000: A Position Paper	Dan Kasprzyk
2002-06	The Measurement of Instructional Background Indicators: Cognitive Laboratory Investigations of the Responses of Fourth and Eighth Grade Students and Teachers to Questionnaire Items	Arnold Goldstein
Teachers – opinions regarding safety		
98–08	The Redesign of the Schools and Staffing Survey for 1999–2000: A Position Paper	Dan Kasprzyk
Teachers – performance evaluations		
1999–04	Measuring Teacher Qualifications	Dan Kasprzyk
Teachers – qualifications of		
1999–04	Measuring Teacher Qualifications	Dan Kasprzyk
Teachers – salaries of		
94–05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
Training		
2000–16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000–16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Variance estimation		
2000–03	Strengths and Limitations of Using SUDAAN, Stata, and WesVarPC for Computing Variances from NCES Data Sets	Ralph Lee
2000–04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
2001–18	A Study of Variance Estimation Methods	Ralph Lee
Violence		
97–09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
Vocational education		
95–12	Rural Education Data User's Guide	Samuel Peng
1999–05	Procedures Guide for Transcript Studies	Dawn Nelson
1999–06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson

No.	Title	NCES contact