National Longitudinal Study of Adolescent Health

Wave III
Education Data

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Overview and Background

Study Objectives

The Adolescent Health and Academic Achievement (AHAA) study provides an opportunity to examine the health behaviors and human relationships of adolescents in the 1990s with necessary attention to their education, one of the most defining aspects of adolescents' lives. It expands the *National Longitudinal Study of Adolescent Health* (Add Health) to include detailed measures of academic achievement and experiences by collecting transcripts for the Wave III Add Health sample members. The AHAA data provide indicators of (1) educational achievement, (2) course taking patterns on multiple levels, (3) curricular exposure, and (4) educational contexts within and between schools, all linked to the Add Health survey data. The 1990s was a period of widespread, decentralized school reform policy, including changes in curriculum, implementation of prevention and school safety programs, and attention to the needs of special populations. AHAA provides an opportunity to examine these policy initiatives and compare this period with the preceding and subsequent decades.

This guide briefly describes the theoretical background for the study and the variables included in this first data release, followed by a description of the data collection and coding procedures, and a detailed explanation of the variables included in this first release.

Background

High school is the major social institution that provides future opportunity for adolescents. Over two decades ago researchers recognized that the grouping of students according to preparation and ability—tracking—is a mechanism through which the intergenerational transmission of socioeconomic advantage or disadvantage is reinforced or disrupted. Students' experiences and opportunities to learn, as measured by how they are grouped in courses, explain much of the difference between family background and students' attainment. Public schools usually stratify students within the school, with course placements indicating opportunities that are associated with attainment (Gamoran 1987; Oakes 1985; Oakes and Guiton 1995). Schools' "detracking" policies have made contemporary practices more complex, though course taking patterns still reflect opportunities to learn (Lucas 1999; Lucas and Berends 2002; Oakes, Wells, and Jones 1997; Schneider, Swanson, and Riegle-Crumb 1998; Stevenson, Schiller, and Schneider 1994).

Students' experiences with the formal organization of schools are not monolithic (Powell, Farrar, and Cohen 1985), but are rather defined by the specific sets of courses in which they participate (Barr and Dreeben 1983; Dreeben 1994; Gamoran 1991). In high schools today, students taking advanced courses and multiple years of foreign language experience a different social context than those taking vocational education courses or a few basic years of core subjects. These patterns of stratification are similar to an "occupational structure" or status system for high school students in which everyday life and current and future opportunities are shaped by status and position in this structure (Rosenbaum 1986; Sorensen 1987), although the particular structure of opportunity within a school may be different from school to school. The AHAA study builds on the foundation of research in sociology and education that links high school transcript data to social stratification processes.

As students progress through the high school years toward graduation, some students accumulate knowledge and course credit that prepares them for post-secondary educational opportunities while others struggle to complete minimum graduation requirements. Although

these requirements vary among states, districts, and even school programs, all states require the satisfactory completion of multiple years of core academic courses such as math and English. Consequently, some students are able to complete graduation requirements in fewer than four years of high school. For others, academic trajectories that include course failures and non-credit courses may result in slowed progress toward graduation, even requiring students to complete more than four years of high school to graduate. In a given year, students' coursework may be in more than one grade level (for further discussion, see the discussion of Linking Indicators). As a result, the concept of grade level retention or skipping a grade does not apply to the high school years as it does in the elementary and middle school grades.

Stratification in schools is most clearly observed in students' course enrollment patterns. Typically, the high school curriculum is organized into sequences of courses in which subject knowledge gained from one course prepares a student for the next course (Schneider et al. 1998; Stevenson et al. 1994). The hierarchical nature of course sequences, where movement from less to more advanced classes in a subject is generally based on successful completion of prerequisites, results in limited mobility for those students who begin high school taking lower level courses. For example, students who take Geometry as freshman are in a position of advantage for reaching advanced courses such as Calculus by their senior year, compared to students who begin high school taking Pre-Algebra. Additionally, scheduling requirements (Pallas, Natriello, and Riehl 1994), the homogeneity of course composition based on students' prior achievement, and other features of high school organization, all observed in course enrollment patterns, shape opportunity for social interaction and the broader high school experience, in addition to curricular exposure.

More than two decades of research on stratification in schools has shown that students' exposure to curriculum leads to a variety of outcomes. Access to advanced courses is directly related to future opportunity to learn (Gamoran 1987; Stevenson et al. 1994), to performance on achievement tests such as college entrance exams (Pallas and Alexander 1983), and to college enrollment (Schneider et al. 1998) and success (Moreno and Muller 1999). Thus, examining students' academic achievement in high school provides not only valuable information on inequality during adolescence, but also on the foundation of social and occupational stratification in adulthood.

The next two sections detail the data collection and coding procedures used in AHAA, and discuss how the AHAA study design relates to the Add Health data collection waves

Data Collection and Coding Procedures

Data Collection

Wave III of the Add Health study targeted all Wave I respondents and was conducted from July 2001 to April 2002 when these respondents were between the ages of 18 and 26. Wave III respondents were asked to sign a Transcript Release Form (TRF) authorizing Add Health to request official transcripts from the high schools they last attended. Approximately 91.5% of Wave III respondents (N = 13,901) signed a valid TRF and from August 2001 through June 2002, AHAA collected high school transcripts for most respondents. Importantly, the data collection procedure used for AHAA was student-based in that transcripts were collected from the final school respondents attended. This meant that transcripts were not just collected from the original Add Health schools, but from the more than 1,400 high schools Add Health respondents last attended. Transcripts were not collected from two original Add Health schools that served only special education students and did not keep transcript records; however, a few respondents who entered the Add Health sample through one of these two schools do have transcript records in the AHAA data base because they last attended another school that did keep transcript records.

Transcript Coding

In order to provide high quality, accurate, and consistent coding, AHAA used the Classification of Secondary School Curriculum (CSSC) to code the courses appearing on student transcripts, as well as all courses offered at Add Health schools and eligible non-Add Health schools. For every course on a student's high school transcript, CSSC codes indicate the general subject, such as English or Math, as well as the more detailed subject, such as English I Honors or Algebra II. This taxonomy or coding scheme, which has been refined and standardized over the years, was used for High School and Beyond (HS&B), the National Educational Longitudinal Study of 1988 (NELS), and all of the National Assessment of Educational Progress (NAEP) High School Transcripts Studies (HSTS) conducted in the last decade and a half (Ingels et al. 1995; Legum, Caldwell, Davis, and Haynes 1997). The AHAA coding procedures were developed to ensure compatibility with data produced for the 1987, 1990, 1994, 1998, and 2000 NAEP HSTS, HS&B and NELS, making AHAA comparable to these other landmark education data sets.

Several important distinctions of the AHAA are worth noting. First, any coursework taken at an Add Health high school was identified as having been taken at that school, even if a student later transferred to another high school. This step allows analysts to place students in their respective Add Health schools prior to transferring and minimizes the amount of missing data reported for school-specific information. Second, in contrast to the previous high school transcripts studies which simply demanded students' transcripts from schools without explicit student permission, the AHAA study received respondents' permissions, which may have made the collection of these transcripts more successful. Third, similar to NELS and HS&B and in contrast to the NAEP HSTS, the AHAA collected transcripts for students who did and did not complete a high school degree.

The AHAA Design in Relation to the Add Health Waves

Using the AHAA data requires attention to the temporal order of Add Health survey administration relative to the academic or school years in which students were in high school and taking courses. Figure 1, below, illustrates these temporally ordered relationships for each Add Health grade level cohort. Add Health sampled approximately equal numbers of students in each of six grade levels (7 to 12). Each of these grade level cohorts are identified in the far left column, and the academic years in which each cohort is likely to be enrolled in high school are identified in each row with the designation of Years 1 to 4 (with Year 1 referring to the 1st year of high school, and so forth). The numbering system of Years 1 to 4 refers to the organization of the AHAA transcript-based constructed variables, described below in detail. The shaded cells in Figure 1 represent academic years in which a survey was administered.[1] Notice that Add Health sample members who entered the study as 7th graders in the 1994-95 academic year generally began high school coursework after the administration of the Wave II survey. In contrast, students who entered the study as high school seniors in the 1994-95 academic year generally completed most of their high school coursework before they responded to the In-School survey.

Figure 1. Intersection of Add Health survey data with AHAA high school coursework data from transcripts.

Add Health Surveys				In-School & Wave I	Wave II					Wave III
Academic Year	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	01-02
Cohort										
7th grade				*7*	*8*	9 Year 1	10 Year 2	11 Year 3	12 Year 4	
8th grade				*8*	9 Year 1	10 Year 2	11 Year 3	12 Year 4		
9th grade				9 Year 1	10 Year 2	11 Year 3	12 Year 4			
10th grade			9 Year 1	10 Year 2	11 Year 3	12 Year 4				
11th grade		9 Year 1	10 Year 2	11 Year 3	12 Year 4					
12th grade	9 Year 1	10 Year 2	11 Year 3	12 Year 4						

The varying intersection between survey data and transcript data for the different Add Health cohorts results in several issues of which analysts should be aware. First, not all cohorts of students should necessarily be included in every analysis. Because the Add Health design was grade stratified, students are nationally representative of adolescents in their grade level in 1994-95, allowing for a narrowing of the sample to accurately reflect the research question of interest. For example, if an analyst wants to determine how students' attitudes (as reported in the In-School survey) in the early years of high school influence subsequent academic achievement (as measured with AHAA data), only the 9th and 10th grade cohorts should be

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[1] It is worth noting that a substantial proportion of Wave I sample members were surveyed during the 1995 summer months.

chosen for the analysis. Second, to use the AHAA academic indicators, analysts will often need to refer to different years of course-taking data for students from different cohorts. For example, if an analyst wanted to examine students' grades (as reported on their transcript from AHAA) in the year immediately preceding an outcome measured at Wave II, this would necessitate referring to Year 1 data for the 9th grade cohort, Year 2 data for the 10th grade cohort, and Year 3 data for the 11th grade cohort. (Note that most 12th graders were not included in Wave II of Add Health.) Third, using the AHAA academic indicators that measure the level of students' courses (see the section on Math and Science Course-Sequence Indicators) also requires attention to the fact that the meaning of taking a lower-level course changes according to when students take it. The following example illustrates the third issue, as well as the previous two issues, that must be considered when using Add Health survey data and AHAA high school transcript data.

Suppose a researcher is interested in estimating the effects of parent's education and student's grades and math course level on student's educational aspirations. The dependent variable, educational aspirations, is measured at Wave II. Parent's education is available from either the In-School or the Wave I survey. To measure students' grades and math course level prior to the timing of the dependent measure at Wave II, several steps must be taken. First, the analyst should select only grade level cohorts who were enrolled in high school in Wave I. This excludes the 7th and 8th grade cohorts. The 12th grade cohort, who was generally not interviewed at Wave II, would also be excluded because the dependent variable is not measured for this group. Thus, the analyst would select only the 9th, 10th, and 11th grade cohorts and use as independent variables parent's education, reported in 1994-95 (from either the In-School or Wave I survey), and grades and math course level from that academic year. The organization of the transcript data, described in more detail below, would require that the analyst use students' grades in Year 1 for 9th grade cohort, grades in Year 2 for 10th grade cohort, and grades in Year 3 for 11th grade cohort to predict the Wave II survey item, educational aspirations. Accurately capturing the math course level requires an additional step, since the meaning of taking Algebra I as a 9th grader is different than taking Algebra I as a 11th grader. For this example, the analyst might choose to calculate the modal level of the math course sequence separately for each cohort of 9th graders, 10th graders, and 11th graders, and then create a new variable to indicate whether each student's math course is above, below, or at the mode for his or her cohort.

In contrast to the complexity involved in linking AHAA data to survey data from the In-School survey and Waves I and II of Add Health, linking AHAA data to Wave III data is less difficult. As seen in Figure 1, because students from all cohorts have completed their high school course taking by Wave III (with the exception of a small number of students who were in high school for longer than four years) this simplifies predicting Wave III outcomes with AHAA data. The AHAA data provide common benchmarks for all students, such as cumulative indicators of high school achievement or an educational indicator from students' last year of high school, that could be used to predict educational, occupational, or social outcomes in Wave III. (However the analyst should consider that the time between the end of high school and the Wave III outcome varies by cohort.)

It is important to note that for analysts primarily interested in examining issues of adolescents' educational experiences, the AHAA data provide a wealth of information on the complete high school careers of six nationally representative cohorts of students in the 1990's. The Add Health survey provides related information on students' family background and history that precede the high school careers of students from all cohorts. For an illustration of research using this approach with these data, see Riegle-Crumb 2005.

The first release of the AHAA data encompasses a range of indicators which fall into four general categories, and their organizations are described later in this and accompanying documents. Most of the variables in the first release are constructed from transcript data. They include the linking indicators (part I) designed to help analysts link transcript data to academic or school years and to the Add Health surveys, and the constructed academic-course indicators (part II, to be released) which measure aspects of students' course-taking enrollment and performance in each year and cumulatively over all years of high school. In addition, the first release includes indicators related to transcript reported graduation or exit status and sample weights. Descriptions of the graduation indicators are in Wave III Graduation Data. Information concerning sample weights is in Wave III Education Data Weights Code Book and Wave III Education Data Weights.

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First Release Indicators

I. Linking Indicators

Section 1: School-Year Indicators

ELYEAR1 to ELYEAR6

These variables refer to the school years in which students were taking high school courses, and allow analysts to infer the duration of their high school career. ELYEAR1 is the school year that corresponds to the 1st year of high school course-taking data for each student. ELYEAR2 is the 2nd school year of high school course-taking data for each student, and so forth. A small number of students had more than four years of high school course-taking data. ELYEAR5 refers to the 5th year of course-taking data and ELYEAR6 refers to the 6th year of course taking. Approximately 40 students had more than six years of data. For these students, all information used for the constructed academic indicators from subsequent years (such as grades) is collapsed together with their information from their 6th year. Therefore, for this small group of students, their value on ELYEAR6 does not correspond to their last year of course taking.

All of the constructed academic course indicators discussed in Sections 3 to 5 have names ending with a number as the last character, which refers to these years of course taking. For example, EAMGPA1 is students' math GPA for the 1st of their course taking, or ELYEAR1. It is important to note that while school years run from the fall of one year to the spring of the subsequent year, for shorthand purposes all years are coded according to the fall. Therefore a value of "1994" on the ELYEAR1 variable corresponds to the school year 1994-95.

In general, ELYEAR1 corresponds to students' 9th grade or freshman year (see the discussion of ELY1NINE below), ELYEAR2 corresponds to their 10th grade or sophomore year, and so forth. Yet careful examination of students' transcripts revealed that the grade level assigned to students' courses sometimes varies within a given year. For example, some courses in a student's 2nd year of high school might be labeled as 9th grade on their transcript and others labeled as 10th grade. The meaning of grade level in high school is further complicated by the fact that some students take courses for longer than four years, and others for less. Additionally, the meaning of retention in high school is not clear, as students are unlikely to be "held back" and required to retake an entire year's worth of courses in the same manner as students in primary school. Thus, the AHAA variables ELYEAR1-6 indicate students' course-taking years with a numbering scheme (i.e., the 1st of high school course taking, the 2nd year, etc.) rather than referring directly to their 9th grade year, their 10th grade year, etc. Indicators are provided, however, to supply analysts with information about the grade level of students' courses recorded on their transcripts. (See the discussion of ELY1NINE and ELGLV945 below.)

Because ELYEAR1 represents the 1st of high school course taking for all students whose transcripts were collected, there are no missing values for this variable. For subsequent years (ELYEAR2-6), a missing value of 9992 indicates that the student has graduated from or is no longer in high school, or at the very least, that there is no additional course-taking information available for that student.

There are a small number of students with one- or two-year-long gaps in their high school transcripts where no courses are recorded. This could be due to a transcript error, or could indicate that the student was not attending high school in that school year. These students

have a valid value for the ELYEAR variables corresponding to the time of the gap, but are assigned a missing value of 9992 (no course-taking data in year) for all constructed academic indicators in that year, such as grade point average (GPA). Consequently, the number of students with a missing value of 9992 on an ELYEAR variable in a given year is slightly smaller than the number of students with a missing value of 9992 on any corresponding constructed academic course indicator. This difference indicates the number of students who have no course-taking information in that year, but who do have course-taking information recorded in one or more subsequent years.

ELMAT945

Due to the multi-cohort design of Add Health, students' high school careers overlap differently with the survey years. For example, students who entered Add Health as 11th or 12th graders, have academic information from the AHAA study that precedes their survey responses. For those students who entered the Add Health survey as 7th and 8th graders, most of their survey data occur before they enter high school, and therefore precedes all of the AHAA constructed academic course indicators created from their high school transcripts. The ELMAT945 variable allows analysts to easily match students' high school course-taking information to the school year 1994-95, when the In-School survey was conducted, and therefore provides a link between survey data from Add Health and data from AHAA. For example, if an analyst is interested in examining students' overall GPA at the same time point as their responses to survey questions from the In-School survey, ELMAT945 would indicate which of the students' overall GPA variables to use (selecting from: EAOGPA1, EAOGPA2, EAOGPA3, EAOGPA4, EAOGPA5, EAOGPA6).

Additionally, because all of the questions answered in Wave I refer to students' experiences during the school year 1994-95, the ELMAT945 variable also indicates the school year that these students referred to when responding to Wave I questions. Analysts may still wish to exercise caution with those Add Health students who responded to the Wave I survey during the end of the summer of the 1994-95 school year, as well as those who answered it in the beginning months of the 1995-96 school year.

A small number of students' last year of course taking preceded 1994-95, and are assigned a missing code of 9994 on ELMAT945. Because Add Health began in that year, it is likely that these students were in high school in 1994-95, but have incomplete transcript information. Also, there are a few students whose value for ELYEAR6 is 1993 (for the school-year 1993-94), but their value on ELMAT945 is 6 (for 6th year of course taking = 1994-95). Note that this is due to the convention of collapsing years 7 to 12 course-taking information with Year 6 information, and that these students were actually in their 7th year of course taking in 1994-95.

Section 2: Grade-Level Indicators

ELGLV945 and ELY1NINE

ELGLV945 indicates students' grade level in the school year 1994-95 (the year of the In-School survey of Add Health). Because each course a student took in a given year is assigned a grade level on his/her transcript, this variable was calculated as the mean grade level of all courses taken in that year. For most students, all of the courses taken in a given school year had the same grade level, and therefore they have a whole number value for ELGLV945. However, some students had courses marked with different grade levels during the same school year,

and therefore do not have a whole number value on ELGLV945.

It should be noted that this variable is calculated using only information from students' high school transcripts. Official school records of students' grade level may differ from students' survey reports of their grade level. Schools may treat grade level as a function of credits accrued towards graduation requirements, and therefore take account of course failures or difficulty of courses when assigning grade level. By contrast, students may consider grade level as a function of their length of time in school. In the majority of cases, there is direct correspondence between grade levels reported by students and those reported by schools. Yet discrepancies do exist. For these reasons, analysts may choose to compare values on ELGLV945 to students' self-reported grade level from the Add Health surveys.

While ELGLV945 provides information about students' transcript-indicated grade level in the school year 1994-95, ELY1NINE is a dichotomous indicator of whether or not students' ELYEAR1, or the 1st of high school course-taking data, generally corresponds to their 9th grade year. This is determined by the mean grade level assigned to all courses students took in ELYEAR1. For students whose average grade level was exactly 9 (which was the large majority of students), or greater than 9 but less than 10, we can generally conclude that the 1st of course-taking data is their 9th grade year. These students have a value of 1 on ELY1NINE.

Students with a value of 0 on ELY1NINE had a transcript-indicated average grade level that was 10 or higher for their 1st of course-taking data. This could indicate that the student's transcript was incomplete and did not include their 9th grade courses, or instead that the student began high school at a relatively accelerated position, taking 10th grade courses or higher.

Analysts familiar with Add Health are aware that it includes several high schools with a grade range of only 10th to 12th grades. Because high school transcripts nationwide include students' course-taking information from grades 9 to 12, students attending these schools still have 9th grade courses listed on their transcripts.

II. Constructed Academic-Course Indicators

Section 3: Math- and Science- Course-Sequence Indicators

EAMSQ1-6, EAMSQH, EASSQ1-6, EASSQH

These course-sequence indicators were developed to capture the academic level of students' courses in core high school subjects, and are therefore key indicators of academic achievement. Math and science courses in high school are organized into hierarchical sequences, such that certain courses are recognized as being more advanced and generally requiring more prerequisites compared to others. These indicators reflect students' location in these math and science course-taking hierarchies within each year of high school, as well as the ultimate level of course taking attained in these subjects by the end of high school.

These indicators were constructed using Classification of Secondary School Courses (CSSC) codes, which are attached to each course on a student's transcript. CSSC codes specify not only the general subject (math), but the specific course subject (such as Algebra I). Using this detailed coding scheme, ordinal indicators of course sequences were developed based on major course subjects within math and science.

The subject categories of the math course sequence include: 1, Basic/Remedial Math; 2, General/Applied Math; 3, Pre-algebra; 4, Algebra I; 5, Geometry; 6, Algebra II; 7, Advanced Math (Algebra III, Finite Math, Statistics); 8, Pre-calculus (includes Trigonometry); and 9, Calculus. The subject categories for the science course sequence include: 1, Basic/Remedial Science; 2, General/Earth Science; 3, Biology I; 4, Chemistry; 5, Advanced Science (Biology II, Chemistry II); and 6, Physics. These categories reflect a hierarchy of courses ranging from less to more advanced. Note that students do not have to pass through each category of the sequence. For instance, students might take either Advanced Math or Pre-calculus, but not both. Additionally, while most students' course-taking patterns reflect a linear movement through the sequence, a minority of students may have different patterns (i.e., Chemistry may not always precede Physics).

All of the yearly course-sequence indicators (EAMSQ1-6, EASSQ1-6) are named to indicate the students' course-taking year to which it corresponds. For example, EAMSQ2 is students' math course-sequence level for their 2nd year of course taking (ELYEAR2). Students who did not take a math or science course in a given year are assigned a value of 0. Those small number of students who did not have any math courses or any science courses recorded on their high school transcripts are assigned a missing value of 9993 for all sequence variables in that subject. For each year of course taking, students are assigned to the category that reflects the highest level class they took for one semester or more, regardless of whether or not they received credit for the course. If a student took two different math courses in one year for example (such as Algebra II and Geometry), they are placed in the higher category (i.e., Algebra II).

In addition to the series of variables capturing students' course-taking level for each year, AHAA provides cumulative measures that capture the highest level course taken by the end of high school for these two subjects (EAMSQH, EASSQH). For these cumulative indicators, there is no value of 0, as students had to have taken at least one math or one science course to be included in the construction of the variables (those that did not are assigned a missing value as discussed above). It is also important to note that using students' sequence level in the last year they attended high school (such as EAMSQ4 for students who attended for four years) is not the same as the highest level course the student ever took, as many students do not take a math or a science course their senior year of high school.

EAMSQB1-6, EAMSQBH, EASSQB1-6, EASSQBH

"B versions" of the sequence variables were also created, where students are placed at a given level of the variable only if they receive some credit for the course taken. Students' transcripts indicate the amount of standardized credits, or Carnegie units, they receive for each course taken. In most cases, not receiving credit for a course is the result of the student failing the course. For the B version of the sequence variables, if students took a course but received no credit in a given year, they are placed in the "0" category ("No Math" or "No Science"). If students took two separate courses and failed one, they are assigned to the category for the course that they passed.

Additionally, there are also cumulative measures that represent the highest level course for which a student received credit in high school for each subject (EAMSQBH, EASSQBH). The decision to use the regular or B versions of the course-sequence indicators depends on the particular research question of interest. The analyst must decide whether it is more relevant to consider if students have taken certain levels of courses, or instead if they earned credit for certain levels of courses.

Overall, these math and science sequence variables (both the regular and the B version) provide analysts with measures of students' academic achievement at the end of high school, as well as in each year of their school course taking, regardless of the actual school years when this occurred. For example, EAMSQ1 provides analysts with a measure of the level of math course each student took at the beginning of high school (although as mentioned before, the analysts might choose to exercise caution and restrict this to students whose ELYEAR1 corresponds to 9th grade, as indicated by ELY1NINE). The variable EAMSQ1 could also be dichotomized to capture whether the student began high school by taking Algebra I or a higher course, or entered high school taking Pre-Algebra or a lower course.

There is a very strong connection between the level of students' math and science course taking at the beginning and the end of high school, such that students who begin at a higher level tend to end at a higher level. When using the variables for the highest level attained by the end of high school (EASSQH, EASSQBH or EAMSQH, EAMSQBH) as outcome variables, it is recommended that the student's placement at the beginning of high school should be included as a covariate in the analysis (EAMSQ1 or EAMSQB1, EASSQ1 or EASSQB1), to control on initial placement. The variables for highest level attained by end of high school can also be dichotomized as dependent variables, for example, whether or not a student took Algebra II or Chemistry by the end of high school. Analysts may also choose to use EAMSQH or EASSQH (or the B versions) as measures of ultimate high school achievement, and use them to predict later adult outcomes as measured in Wave III of Add Health.

Finally, as mentioned in the section "The AHAA Design in Relation to the Add Health Waves" (beginning on page 6), analysts wanting to use these course-sequence indicators in conjunction with survey data from Add Health need to carefully consider issues of temporal order. For example, while EAMSQ1 is the benchmark for students' level of math course at the beginning of high school, it could be used as a measure of academic achievement occurring prior to Wave I outcomes for the older cohorts (11th and 12th graders), but it should only be used as a predictor of Wave II outcomes for the 9th grade cohort. If an analyst wants to predict a Wave II outcome for students from several cohorts controlling on students' math course level at Wave I, the analyst would first need to determine which year of the math course-sequence indicator to use for each cohort (EAMSQ1-4), and could then determine whether each student was advanced, regular, or below based on the modal sequence level for their cohort.

Section 4: Course Grades

EAMGPA1-6, EAMGPAC, EASGPA1-6, EASGPAC, EAOGPA1-6, EAOGPAC

These variables capture students' academic performance for each year of their high school course taking, as well as cumulatively across all years of high school. GPA indicators were created separately for students' math courses (EAMGPA1-6, EAMGPAC) and science courses (EASGPA1-6, EASGPAC). GPA indicators were also created to measure students' performance in courses across all subjects taken (EAOGPA1-6, EAOGPAC), including electives.

The majority of students in AHAA took courses on a semester basis, such that schools recorded two separate entries for a year-long course on the transcript, each designated with a grade. The GPA variables are calculated as the average grade across semester-length courses in a given year (for the yearly indicators), or across all years of students' course taking (for the cumulative indicators). Less than 1% of all courses taken by the entire sample of AHAA students occurred on a trimester basis. For the purposes of the construction of academic

indicators, trimesters are considered equivalent to semesters. Students who took courses designated as year long (and with only one grade recorded) are treated as having received the same grade for two semester-length courses. Fs are coded as 0, Ds are coded as 1, Cs are coded as 2, Bs are coded as 3, and As are coded as 4. When students received a P for pass, a NG for not graded, a W for withdrew, a WF for withdrew failing, a WP for withdrew passing, or an I for incomplete, these courses were not included in the calculation of GPA. Students who did not take a course assigned a grade of A to F in a given year, but who did take a course that year, have a missing value of 9995 on the corresponding GPA variable (for math courses, science courses, or overall courses).

All of the GPA variables are named to indicate the students' course-taking year to which it corresponds (for example, EAMGPA2 is the students' math GPA for the 2nd year of high school course taking), with the exception of the cumulative measures that represent GPA for all years of course taking (designated with a C as the last character of the variable, such as EAMGPAC)**.** Students who were not taking a math or science course in a given year are assigned a missing value for the corresponding GPA variable.

Additionally, analysts should note that the cumulative indicators represent the average across all years for which the student was taking courses (or taking math or science courses for the subject-specific indicators). If a student has only two years of course-taking data, for example, his or her value on EAOGPAC would be calculated based on only two years of data, in contrast to the typical student with four years of data.

These measures provide analysts with yearly indicators of students' academic performance in the core curricular subjects of math and science as well as across all subjects taken. In contrast to self-reported data, these are official indicators of performance as recorded on the students' high school transcripts. They provide analysts with parallel measures of academic performance for students from all different cohorts. For example, by using EAOGPA1, the analyst has a base measure of academic performance at the beginning of high school for all students, regardless of what school year they began high school. (Note that in the example mentioned, a careful analyst might choose to restrict the analysis only to students' whose transcript-indicated grade level in ELYEAR1 corresponded to 9th grade by using ELY1NINE).

Finally, as mentioned in the section on the "The AHAA Design in Relation to the Add Health Waves" (beginning on page 6), analysts interested in examining students' grades in conjunction with survey data from Add Health are advised to consider issues of temporal order of their variables.

Section 5: Course Failures

EAMFIX1-6, EAMFIXC, EASFIX1-6, EASFIXC, EAOFIX1-6, EAOFIXC

While GPA captures the range of student performance, the failure index variables capture the extreme end of low academic performance. These variables are proportions that correspond to the number of semester-length courses failed (in each year or across all years of high school) divided by the number of semester-length courses attempted (in each year or cumulatively). Courses not assigned a grade of A to F are not included in the calculation of failure. Separate indicators are constructed for math and science as well as overall indicators of failures across all subjects. Failures are defined as they were for the GPA variables, relying only on the grade received, and not on whether the student's transcript indicated that he/she had received credit for the course. (However, in the vast majority of cases students who received a grade of F in a

given course did not receive any credit.)

A value of 0 on a failure index variable indicates no failures, while a value of 1 indicates that the student failed all courses in a given year or cumulatively (in math, in science, or across subjects). Students whose values fall between 0 and 1 therefore failed some proportion of the courses they attempted for a grade. Although the failure variables are continuous in nature, analysts should take care when using them in this format, given that the majority of students have a value of 0 on each of the variables. Instead, analysts might choose to create a dichotomous indicator (any failure vs. none), or choose certain threshold values based on the particular analysis or research question being addressed.

Additionally, unless a student fails all of his/her courses in a given subject or across subjects, the student will have a corresponding GPA measure that is greater than 0. For example, if a student took two semesters of math in ELYEAR2, and failed the first semester but received a C the second semester, he/she would have a value of .5 for EAMFIDX2 and a value of 1 for EAMGPA2.

Quick Reference Guide to Variables

I.   Linking Indicators

   Section 1: School-Year Indicators

ELYEAR1   School years of students' course taking in high school, beginning with their
ELYEAR2   1st and continuing through their 2nd, 3rd, and 4th. Students with more than
ELYEAR3   four years of high school course taking have valid values for ELYERAR5 and
ELYEAR4   in a few cases, ELYEAR6.
ELYEAR5
ELYEAR6

ELMAT945   Match between student's course-taking years (ELYEAR1-6) and the school
               year 1994-95.

   Section 2: Grade-Level Indicators

ELGLV945   Students' high school grade level for the school year 1994-95, calculated as
               the mean grade level of all courses listed on their transcript for that school
               year.

ELY1NINE   Dichotomous variable indicating whether or not students' 1st of course taking
               (ELYEAR1) corresponds to their 9th grade year, as indicated by the mean
               grade level of courses listed on their transcript in that year.

II.   Constructed Academic Course Indicators

   Section 3: Math and Science Course Indicators

Math

EAMSQ1   Ordinal variables that represent the highest level math course taken in
EAMSQ2   each year of students' high school course taking (EAMSQ1-6), and the
EAMSQ3   highest level math course taken by the end of high school (EAMSQH).
EAMSQ4
EAMSQ5
EAMSQ6
EAMSQH

Math B Version

EAMSQB1   B Version: Ordinal variables that represent the highest level math course
EAMSQB2   for which a student received credit in each year (EASMSQB1-6), and the
EAMSQB3   highest level math course for which the student received credit by the end
EAMSQB4   of high school (EAMSQBH).
EAMSQB5
EAMSQB6
EAMSQBH

Science

EASSQ1	Ordinal variables that represent the highest level science course taken in
EASSQ2	each year of students' high school course taking (EASSQ1-6), and the
EASSQ3	highest level science course taken by the end of high school (EASSQH).
EASSQ4	
EASSQ5	
EASSQ6	
EASSQH	

Science B Version

EASSQB1	B Version: Ordinal variables that represent the highest level science
EASSQB2	course for which a student received credit in each year (EASSQB1-6),
EASSQB3	and the highest level science course for which the student received credit
EASSQB4	by the end of high school (EAHSSQB).
EASSQB5	
EASSQB6	
EASSQBH	

Section 4: Course Grades

Math GPA

EAMGPA1	GPA of math courses taken in each year (EAMGPA1-6) and cumulatively
EAMGPA2	(EAMGPAC).
EAMGPA3	
EAMGPA4	
EAMGPA5	
EAMGPA6	
EAMGPAC	

Science GPA

EASGPA1	GPA of science courses taken in each year (EASGPA1-6) and
EASGPA2	cumulatively (EASGPAC).
EASGPA3	
EASGPA4	
EASGPA5	
EASGPA6	
EASGPAC	

Overall GPA

EAOGPA1	Overall GPA for all courses taken in each year (EAOGPA1-6) and
EAOGPA2	cumulatively (EAOGPAC).
EAOGPA3	
EAOGPA4	
EAOGPA5	
EAOGPA6	

EASOPAC

Section 5: Course Failures

Math Failure Index

EAMFIX1   Proportion of math courses that students failed in each year (EAMFIX1-6)
EAMFIX2   and cumulatively (EAMFIXC).
EAMFIX3
EAMFIX4
EAMFIX5
EAMFIX6
EAMFIXC

Science Failure Index

EASFIX1   Proportion of science courses that students failed in each year (EASFIX1-
EASFIX2   6) and cumulatively (EASFIXC).
EASFIX3
EASFIX4
EASFIX5
EASFIX6
EASFIXC

Overall Failure Index

EAOFIX1   Proportion of all courses that students failed in each year (EAOFIX1-6)
EAOFIX2   and cumulatively (EAOFIXC).
EAOFIX3
EAOFIX4
EAOFIX5
EAOFIX6
EAOFIXC

Frequency	Code	Response	Variable Name	Type/ Length
		Respondent Identifier	**AID**	char 8
12241		range 10000000 to 99999999		

I. Constructed Academic Status Indicators

Section 1: School-Year Linking Indicators

Frequency	Code	Response	Variable Name	Type/Length
		1st Year of High School Course Taking	**ELYEAR1**	num 8
9	1987	1987-1998		
5	1988	1998-1999		
12	1989	1989-1990		
93	1990	1990-1991		
1933	1991	1991-1992		
2353	1992	1992-1993		
2339	1993	1993-1994		
2107	1994	1994-1995		
1602	1995	1995-1996		
1631	1996	1996-1997		
103	1997	1997-1998		
24	1998	1998-1999		
26	1999	1999-2000		
		2nd Year of High School Course Taking	**ELYEAR2**	num 8
8	1988	1998-1999		
4	1989	1989-1990		
11	1990	1990-1991		
93	1991	1991-1992		
1931	1992	1992-1993		
2349	1993	1993-1994		
2314	1994	1994-1995		
2049	1995	1995-1996		
1553	1996	1996-1997		
1577	1997	1997-1998		
84	1998	1998-1999		
16	1999	1999-2000		

Frequency	Code	Response	Variable Name	Type/ Length
248	9992	no course taking data in year 2		
		3rd Year of High School Course Taking	**ELYEAR3**	num 8
7	1989	1989-1990		
4	1990	1990-1991		
11	1991	1991-1992		
92	1992	1992-1993		
1925	1993	1993-1994		
2307	1994	1994-1995		
2212	1995	1995-1996		
1956	1996	1996-1997		
1470	1997	1997-1998		
1518	1998	1998-1999		
64	1999	1999-2000		
671	9992	no course-taking data in year 3		
		4th Year of High School Course Taking	**ELYEAR4**	num 8
4	1990	1990-1991		
4	1991	1991-1992		
10	1992	1992-1993		
90	1993	1993-1994		
1886	1994	1994-1995		
2185	1995	1995-1996		
2104	1996	1996-1997		
1827	1997	1997-1998		
1393	1998	1998-1999		
1433	1999	1999-2000		
25	2000	1999-2000		
1276	9992	no course-taking data in year 4		
		5th Year of High School Course Taking	**ELYEAR5**	num 8
4	1992	1992-1993		
8	1993	1993-1994		
69	1994	1994-1995		

Frequency	Code	Response	Variable Name	Type/ Length
125	1995	1995-1996		
124	1996	1996-1997		
135	1997	1997-1998		
94	1998	1998-1999		
54	1999	1999-2000		
11624	9992	no course-taking data in year 5		
		6th Year of High School Course Taking	**ELYEAR6**	num 8
3	1993	1993-1994		
6	1994	1994-1995		
17	1995	1995-1996		
13	1996	1996-1997		
27	1997	1997-1998		
17	1998	1998-1999		
21	1999	1999-2000		
12133	9992	no course-taking data in year 6		
		Match Between EAYEAR1-6 and 1994-95	**ELMAT945**	num 8
2107	1	year 1 = 1994-95		
2314	2	year 2 = 1994-95		
2307	3	year 3 = 1994-95		
1886	4	year 4 = 1994-95		
69	5	year 5 = 1994-95		
9	6	year6 = 1994-95		
3386	9993	year 1 after 1994-95		
159	9994	last year of course-taking data before 1995-95		

Section 2: Grade Level Indicators

Frequency	Code	Response	Variable Name	Type/ Length
		Mean Grade Level of Courses in 1994-95	**ELGLV945**	num 8
2086	9	9th grade		
69	9.1			
6	9.2			
5	9.5			
2	9.6			

Frequency	Code	Response	Variable Name	Type/ Length
1	9.7			
1	9.8			
4	9.9			
2299	10	10th grade		
70	10.1			
7	10.2			
9	10.3			
2	10.4			
5	10.5			
2	10.6			
2	10.7			
3	10.8			
7	10.9			
2183	11	11th grade		
60	11.1			
8	11.2			
1	11.3			
3	11.4			
12	11.5			
6	11.6			
2	11.7			
2	11.8			
7	11.9			
1816	12	12th grade		
3386	9993	year 1 after 1994-95		
159	9994	last year of course-taking data before 1994-95		
12	9995	no courses recorded in 1994-95		
		Grade Level Year 1	**ELY1NINE**	num 8
172	0	mean grade level of year 1 courses is greater than or equal to 10		
12065	1	mean grade level of year 1 courses is between 9 and 10		

II. Academic Courses Indicators

Frequency	Code	Response	Variable Name	Type/ Length
		Section 3: Math- and Science- Course-Sequence Indicators		
		Math Sequence Level Year 1	**EAMSQ1**	num 8
266	0	no math		
573	1	basic/remedial math		
1605	2	general/applied math		
1450	3	pre-algebra		
5975	4	algebra I		
1734	5	geometry		
430	6	algebra II		
40	7	advanced math		
63	8	pre-calculus		
9	9	calculus		
92	9993	no math courses on transcript in any year		
		Math Sequence Level Year 2	**EAMSQ2**	num 8
359	0	no math		
434	1	basic/remedial math		
850	2	general/applied math		
498	3	pre-algebra		
2860	4	algebra I		
4186	5	geometry		
2050	6	algebra II		
235	7	advanced math		
394	8	pre-calculus		
35	9	calculus		
301	9992	no course-taking data in year 2		
35	9993	no math courses on transcript in any year		
		Math Sequence Level Year 3	**EAMSQ3**	num 8
1142	0	no math		
262	1	basic/remedial math		
703	2	general/applied math		
251	3	pre-algebra		

Frequency	Code	Response	Variable Name	Type/ Length
1163	4	algebra I		
2327	5	geometry		
2826	6	algebra II		
558	7	advanced math		
2089	8	pre-calculus		
163	9	calculus		
724	9992	no course-taking data in year 3		
29	9993	no math courses on transcript in any year		
Math Sequence Level Year 4			**EAMSQ4**	num 8
3655	0	no math		
171	1	basic/remedial math		
852	2	general/applied math		
160	3	pre-algebra		
463	4	algebra I		
804	5	geometry		
1107	6	algebra II		
662	7	advanced math		
1873	8	pre-calculus		
1161	9	calculus		
1306	9992	no course-taking data in year 4		
23	9993	no math courses on transcript in any year		
Math Sequence Level Year 5			**EAMSQ5**	num 8
238	0	no math		
26	1	basic/remedial math		
71	2	general/applied math		
33	3	pre-algebra		
63	4	algebra I		
58	5	geometry		
41	6	algebra II		
15	7	advanced math		
14	8	pre-calculus		

Frequency	Code	Response	Variable Name	Type/ Length
20	9	calculus		
11655	9992	no course-taking data in year 5		
3	9993	no math courses on transcript in any year		
		Math Sequence Level Year 6+	**EAMSQ6**	num 8
46	0	no math		
1	1	basic/remedial math		
17	2	general/applied math		
4	3	pre-algebra		
12	4	algebra I		
11	5	geometry		
3	6	algebra II		
4	7	advanced math		
3	8	pre-calculus		
2	9	calculus		
12133	9992	no course-taking data in year 6+		
1	9993	no math courses on transcript in any year		
		Highest Math Level Taken in All Years	**EAMSQH**	num 8
176	1	basic/remedial math		
449	2	general/applied math		
428	3	pre-algebra		
1588	4	algebra I		
1936	5	geometry		
2809	6	algebra II		
779	7	advanced math		
2696	8	pre-calculus		
1284	9	calculus		
92	9993	no math courses on transcript in any year		
		Math Level with Credit Year 1	**EAMSQB1**	num 8
1222	0	no math		
496	1	basic/remedial math		
1432	2	general/applied math		

Frequency	Code	Response	Variable Name	Type/ Length
1285	3	pre-algebra		
5498	4	algebra I		
1702	5	geometry		
412	6	algebra II		
32	7	advanced math		
57	8	pre-calculus		
9	9	calculus		
92	9993	no math courses on transcript in any year		
Math Level with Credit Year 2			**EAMSQB2**	num 8
1841	0	no math		
357	1	basic/remedial math		
713	2	general/applied math		
111	3	pre-algebra		
2351	4	algebra I		
3930	5	geometry		
1955	6	algebra II		
226	7	advanced math		
382	8	pre-calculus		
35	9	calculus		
301	9992	no course-taking data in year 2		
35	9993	no math courses on transcript in any year		
Math Level with Credit Year 3			**EAMSQB3**	num 8
2296	0	no math		
207	1	basic/remedial math		
618	2	general/applied math		
184	3	pre-algebra		
879	4	algebra I		
1988	5	geometry		
2605	6	algebra II		
511	7	advanced math		
2034	8	pre-calculus		

Frequency	Code	Response	Variable Name	Type/ Length
162	9	calculus		
724	9992	no course-taking data in year 3		
29	9993	no math courses on transcript in any year		
Math Level with Credit Year 4			**EAMSQB4**	num 8
4462	0	no math		
142	1	basic/remedial math		
776	2	general/applied math		
132	3	pre-algebra		
357	4	algebra I		
649	5	geometry		
936	6	algebra II		
602	7	advanced math		
1732	8	pre-calculus		
1120	9	calculus		
1306	9992	no course-taking data in year 4		
23	9993	no math courses on transcript in any year		
Math Level with Credit Year 5			**EAMSQB5**	num 8
297	0	no math		
21	1	basic/remedial math		
62	2	general/applied math		
27	3	pre-algebra		
54	4	algebra I		
45	5	geometry		
28	6	algebra II		
13	7	advanced math		
12	8	pre-calculus		
20	9	calculus		
11655	9992	no course-taking data in year 5		
3	9993	no math courses on transcript in any year		
Math Level with Credit Year 6+			**EAMSQB6**	num 8
55	0	no math		

Frequency	Code	Response	Variable Name	Type/ Length
1	1	basic/remedial math		
15	2	general/applied math		
2	3	pre-algebra		
10	4	algebra I		
10	5	geometry		
1	6	algebra II		
4	7	advanced math		
3	8	pre-calculus		
2	9	calculus		
12133	9992	no course-taking data in year 6+		
1	9993	no math courses on transcript in any year		
Highest Math Level (Credit) All Years			**EAMSQBH**	num 8
287	0	no math		
216	1	basic/remedial math		
634	2	general/applied math		
422	3	pre-algebra		
1514	4	algebra I		
1886	5	geometry		
2664	6	algebra II		
711	7	advanced math		
2568	8	pre-calculus		
1243	9	calculus		
92	9993	no math courses on transcript in any year		
Science Sequence Level Year 1			**EASSQ1**	num 8
1685	0	no science		
87	1	basic/remedial science		
6417	2	general/earth science		
3310	3	biology		
124	4	chemistry		
181	5	advanced science		
266	6	physics		

Frequency	Code	Response	Variable Name	Type/ Length
167	9993	no science courses on transcript in any year		
		Science Sequence Level Year 2	**EASSQ2**	num 8
677	0	no science		
65	1	basic/remedial science		
1698	2	general/earth science		
6661	3	biology		
1927	4	chemistry		
615	5	advanced science		
203	6	physics		
301	9992	no course-taking data in year 2		
90	9993	no science courses on transcript in any year		
		Science Sequence Level Year 3	**EASSQ3**	num 8
2215	0	no science		
32	1	basic/remedial science		
1425	2	general/earth science		
1420	3	biology		
3688	4	chemistry		
1570	5	advanced science		
1098	6	physics		
724	9992	no course-taking data in year 3		
65	9993	no science courses on transcript in any year		
		Science Sequence Level Year 4	**EASSQ4**	num 8
5045	0	no science		
24	1	basic/remedial science		
893	2	general/earth science		
592	3	biology		
768	4	chemistry		
1633	5	advanced science		
1922	6	physics		
1306	9992	no course-taking data in year 4		
54	9993	no science courses on transcript in any year		

Frequency	Code	Response	Variable Name	Type/ Length
		Science Sequence Level Year 5	**EASSQ5**	num 8
311	0	no science		
3	1	basic/remedial science		
85	2	general/earth science		
69	3	biology		
29	4	chemistry		
45	5	advanced science		
35	6	physics		
11655	9992	no course-taking data in year 5		
5	9993	no science courses on transcript in any year		
		Science Sequence Level Year 6+	**EASSQ6**	num 8
60	0	no science		
1	1	basic/remedial science		
16	2	general/earth science		
11	3	biology		
2	4	chemistry		
7	5	advanced science		
5	6	physics		
12133	9992	no course-taking data in year 6+		
2	9993	no science courses on transcript in any year		
		Highest Science Level Taken in All Years	**EASSQH**	num 8
53	1	basic/remedial science		
642	2	general/earth science		
3205	3	biology		
2465	4	chemistry		
2508	5	advanced science		
3197	6	physics		
167	9993	no science courses on transcript in any year		
		Science Level with Credit Year 1	**EASSQB1**	num 8
2405	0	no science		
78	1	basic/remedial science		

Frequency	Code	Response	Variable Name	Type/ Length
5918	2	general/earth science		
3149	3	biology		
115	4	chemistry		
151	5	advanced science		
254	6	physics		
167	9993	no science courses on transcript in any year		
Science Level with Credit Year 2			**EASSQB2**	num 8
1532	0	no science		
58	1	basic/remedial science		
1475	2	general/earth science		
6152	3	biology		
1865	4	chemistry		
568	5	advanced science		
196	6	physics		
301	9992	no course-taking data in year 2		
90	9993	no science courses on transcript in any year		
Science Level with Credit Year 3			**EASSQB3**	num 8
3010	0	no science		
31	1	basic/remedial science		
1261	2	general/earth science		
1166	3	biology		
3424	4	chemistry		
1490	5	advanced science		
1066	6	physics		
724	9992	no course-taking data in year 3		
65	9993	no science courses on transcript in any year		
Science Level with Credit Year 4			**EASSQB4**	num 8
5522	0	no science		
22	1	basic/remedial science		
785	2	general/earth science		
473	3	biology		

Frequency	Code	Response	Variable Name	Type/ Length
674	4	chemistry		
1563	5	advanced science		
1838	6	physics		
1306	9992	no course-taking data in year 4		
54	9993	no science courses on transcript in any year		
		Science Level with Credit Year 5	**EASSQB5**	num 8
362	0	no science		
3	1	basic/remedial science		
68	2	general/earth science		
48	3	biology		
21	4	chemistry		
43	5	advanced science		
32	6	physics		
11655	9992	no course-taking data in year 5		
5	9993	no science courses on transcript in any year		
		Science Level with Credit Year 6+	**EASSQB6**	num 8
65	0	no science		
1	1	basic/remedial science		
13	2	general/earth science		
10	3	biology		
2	4	chemistry		
7	5	advanced science		
4	6	physics		
12133	9992	no course-taking data in year 6+		
2	9993	no science courses on transcript in any year		
		Highest Science Level (Credit) All Years	**EASSQBH**	num 8
318	0	no science		
58	1	basic/remedial science		
772	2	general/earth science		
3167	3	biology		
2289	4	chemistry		

Frequency	Code	Response	Variable Name	Type/Length
2382	5	advanced science		
3084	6	physics		
167	9993	no science courses on transcript in any year		

Section 4: Course Grades

Frequency	Code	Response	Variable Name	Type/Length
		Math GPA Year 1	**EAMGPA1**	num 8
692	0			
440		range 0.25 to 0.75		
1296	1			
916		range 1.167 to 1.833		
2391	2			
1216		range 2.2 to 2.857		
2370	3			
785		range 3.2 to 3.75		
1674	4			
92	9993	no math courses on transcript in any year		
266	9994	no math course in year 1		
99	9995	no graded math course in year 1		
		Math GPA Year 2	**EAMGPA2**	num 8
859	0			
529		range 0.25 to 0.8		
1445	1			
964		range 1.2 to 1.857		
2313	2			
1104		range 2.125 to 2.833		
2077	3			
725		range 3.167 to 3.833		
1421	4			
301	9992	no course-taking data in year 2		
35	9993	no math courses on transcript in any year		
359	9994	no math course in year 2		
105	9995	no graded math course in year 2		

Frequency	Code	Response	Variable Name	Type/ Length
		Math GPA Year 3	**EAMGPA3**	num 8
829	0			
480		range 0.25 to 0.8		
1378	1			
818		range 1.2 to 1.8		
2148	2			
911		range 2.167 to 2.75		
1774	3			
651		range 3.2 to 3.75		
1261	4			
724	9992	no course-taking data in year 3		
29	9993	no math courses on transcript in any year		
1142	9994	no math course in year 3		
92	9995	no graded math course in year 3		
		Math GPA Year 4	**EAMGPA4**	num 8
560	0			
242		range 0.25 to 0.8		
973	1			
441		range 1.2 to 1.8		
1511	2			
573		range 2.2 to 2.8		
1357	3			
424		range 3.2 to 3.8		
1042	4			
1306	9992	no course-taking data in year 4		
23	9993	no math courses on transcript in any year		
3655	9994	no math course in year 4		
130	9995	no graded math course in year 4		
		Math GPA Year 5	**EAMGPA5**	num 8
48	0			
16		range 0.333 to 0.667		

Frequency	Code	Response	Variable Name	Type/ Length
61	1			
23		range 1.25 to 1.833		
66	2			
15		range 2.333 to 2.667		
52	3			
16		range 3.333 to 3.75		
33	4			
11655	9992	no course-taking data in year 5		
3	9993	no math courses on transcript in any year		
238	9994	no math course in year 5		
11	9995	no graded math course in year 5		
Math GPA Year 6+			**EAMGPA6**	num 8
4	0			
2		range 0.333 to 0.5		
6	1			
3		range 1.143 to 1.5		
9	2			
7		range 2.333 to 2.5		
15	3			
7	4			
12133	9992	no course-taking data in year 6+		
1	9993	no math courses on transcript in any year		
46	9994	no math course in year 6+		
4	9995	no graded math course in year 6+		
Cumulative Math GPA Across All Years			**EAMGPAC**	num 8
199	0			
829		range 0.125 to 0.938		
574	1			
4265		range 1.056 to 1.917		
965	2			
3397		range 2.083 to 2.938		

Frequency	Code	Response	Variable Name	Type/ Length
611	3			
1859		range 3.077 to 3.933		
433	4			
92	9993	no math courses on transcript in any year		
41	9995	no graded math course in years 1 to 6+		
Science GPA Year 1			**EASGPA1**	num 8
631	0			
309		range 0.25 to 0.75		
1189	1			
572		range 1.25 to 1.75		
2118	2			
837		range 2.25 to 2.75		
2282	3			
670		range 3.2 to 3.833		
1688	4			
167	9993	no science courses on transcript in any year		
1685	9994	no science course in year 1		
89	9995	no graded science course in year 1		
Science GPA Year 2			**EASGPA2**	num 8
723	0			
333		range 0.25 to 0.75		
1272	1			
744		range 1.167 to 1.833		
2389	2			
957		range 2.25 to 2.75		
2375	3			
708		range 3.2 to 3.75		
1592	4			
301	9992	no course-taking data in year 2		
90	9993	no science courses on transcript in any year		
677	9994	no science course in year 2		

Frequency	Code	Response	Variable Name	Type/ Length
76	9995	no graded science course in year 2		
		Science GPA Year 3	**EASGPA3**	num 8
648	0			
254		range 0.2 to 0.75		
1110	1			
584		range 1.167 to 1.8		
1919	2			
831		range 2.167 to 2.8		
1842	3			
640		range 3.2 to 3.833		
1331	4			
724	9992	no course-taking data in year 3		
65	9993	no science courses on transcript in any year		
2215	9994	no science course in year 3		
74	9995	no graded science course in year 3		
		Science GPA Year 4	**EASGPA4**	num 8
368	0			
115		range 0.25 to 0.8		
607	1			
264		range 1.25 to 1.833		
1161	2			
438		range 2.167 to 2.833		
1279	3			
407		range 3.2 to 3.75		
1113	4			
1306	9992	no course-taking data in year 4		
54	9993	no science courses on transcript in any year		
5045	9994	no science course in year 4		
80	9995	no graded science course in year 4		
		Science GPA Year 5	**EASGPA5**	num 8
40	0			

Frequency	Code	Response	Variable Name	Type/ Length
8		range 0.5 to 0.75		
41	1			
20		range 1.25 to 1.714		
62	2			
8		range 2.5 to 2.8		
46	3			
10		range 3.333 to 3.667		
20	4			
11655	9992	no course-taking data in year 5		
5	9993	no science courses on transcript in any year		
311	9994	no science course in year 5		
11	9995	no graded science course in year 5		
Science GPA Year 6+			**EASGPA6**	num 8
2	0			
4		range 0.333 to 0.8		
6	1			
2	1.5			
10	2			
4		range 2.333 to 2.75		
9	3			
1	3.2			
1	4			
12133	9992	no course-taking data in year 6+		
2	9993	no science courses on transcript in any year		
60	9994	no science course in year 6+		
3	9995	no graded science course in year 6+		
Cumulative Science GPA Across All Years			**EASGPAC**	num 8
270	0			
725		range 0.091 to 0.929		
551	1			
2584		range 1.083 to 1.923		

Frequency	Code	Response	Variable Name	Type/ Length
1070	2			
3268		range 2.071 to 2.917		
890	3			
2157		range 3.063 to 3.929		
522	4			
167	9993	no science courses on transcript in any year		
33	9995	no graded science course in years 1 to 6+		
Overall GPA Year 1			**EAOGPA1**	num 8
89	0			
499		range 0.056 to 0.95		
153	1			
2113		range 1.053 to 1.944		
386	2			
4170		range 2.053 to 2.947		
520	3			
3698		range 3.038 to 3.947		
487	4			
122	9995	no graded science course in year 6+		
Overall GPA Year 2			**EAOGPA2**	num 8
103	0			
548		range 0.067 to 0.962		
114	1			
2193		range 1.059 to 1.95		
358	2			
4118		range 2.037 to 2.958		
480	3			
3546		range 3.056 to 3.967		
419	4			
301	9992	no course-taking data in year 2		
57	9995	no graded course in year 2		
Overall GPA Year 3			**EAOGPA3**	num 8

Frequency	Code	Response	Variable Name	Type/ Length
94	0			
526		range 0.067 to 0.944		
88	1			
2056		range 1.059 to 1.952		
383	2			
3977		range 2.05 to 2.947		
487	3			
3441		range 3.053 to 3.952		
397	4			
724	9992	no course-taking data in year 3		
64	9995	no graded course in year 3		
Overall GPA Year 4			**EAOGPA4**	num 8
85	0			
320		range 0.083 to 0.966		
101	1			
1462		range 1.053 to 1.941		
385	2			
3520		range 2.04 to 2.958		
555	3			
3947		range 3.045 to 3.95		
474	4			
1306	9992	no course-taking data in year 4		
82	9995	no graded course in year 4		
Overall GPA Year 5			**EAOGPA5**	num 8
25	0			
55		range 0.143 to 0.938		
23	1			
118		range 1.071 to 1.929		
42	2			
158		range 2.063 to 2.923		
34	3			

Frequency	Code	Response	Variable Name	Type/Length
99		range 3.063 to 3.909		
14	4			
11655	9992	no course-taking data in year 5		
14	9995	no graded course in year 5		
Overall GPA Year 6+			**EAOGPA6**	num 8
3	0			
8		range 0.2 to 0.962		
2	1			
19		range 1.075 to 1.909		
8	2			
28		range 2.133 to 2.913		
11	3			
14		range 3.167 to 3.75		
3	4			
12133	9992	no course-taking data in year 6+		
8	9995	no graded course in year 6+		
Cumulative GPA Across All Years			**EAOGPAC**	num 8
39	0			
476		range 0.038 to 0.986		
39	1			
2383		range 1.014 to 1.985		
113	2			
4944		range 2.015 to 2.987		
120	3			
3913		range 3.016 to 3.985		
133	4			
77	9995	no graded course in years 1 to 6+		

Section 5: Course Failures

Frequency	Code	Response	Variable Name	Type/Length
Math Failure Index Year 1			**EAMFIX1**	num 8
10154	0			
934		range 0.167 to 0.75		

Frequency	Code	Response	Variable Name	Type/ Length
692	1			
92	9993	no math courses on transcript in any year		
266	9994	no math course in year 1		
99	9995	no graded math course in year 1		
		Math Failure Index Year 2	**EAMFIX2**	num 8
9473	0			
1105		range 0.2 to 0.75		
859	1			
301	9992	no course-taking data in year 2		
35	9993	no math courses on transcript in any year		
359	9994	no math course in year 2		
105	9995	no graded math course in year 2		
		Math Failure Index Year 3	**EAMFIX3**	num 8
8390	0			
1031		range 0.167 to 0.8		
829	1			
724	9992	no course-taking data in year 3		
29	9993	no math courses on transcript in any year		
1142	9994	no math course in year 3		
92	9995	no graded math course in year 3		
		Math Failure Index Year 4	**EAMFIX4**	num 8
6031	0			
532		range 0.143 to 0.833		
560	1			
1306	9992	no course-taking data in year 4		
23	9993	no math courses on transcript in any year		
3655	9994	no math course in year 4		
130	9995	no graded math course in year 4		
		Math Failure Index Year 5	**EAMFIX5**	num 8
243	0			
39		range 0.2 to 0.75		

Frequency	Code	Response	Variable Name	Type/ Length
48	1			
11655	9992	no course-taking data in year 5		
3	9993	no math courses on transcript in any year		
238	9994	no math course in year 5		
11	9995	no graded math course in year 5		
Math Failure Index Year 6+			**EAMFIX6**	num 8
42	0			
7		range 0.333 to 0.833		
4	1			
12133	9992	no course-taking data in year 6+		
1	9993	no math courses on transcript in any year		
46	9994	no math course in year 6+		
4	9995	no graded math course in year 6+		
Math Failure Index Across All Years			**EAMFIXC**	num 8
7807	0			
4048		range 0.071 to 0.909		
199	1			
92	9993	no math courses on transcript in any year		
41	9995	no graded math course in years 1 to 6+		
Science Failure Index Year 1			**EASFIX1**	num 8
9092	0			
573		range 0.25 to 0.8		
631	1			
167	9993	no science courses on transcript in any year		
1685	9994	no science course in year 1		
89	9995	no graded science course in year 1		
Science Failure Index Year 2			**EASFIX2**	num 8
9676	0			
694		range 0.167 to 0.75		
723	1			
301	9992	no course-taking data in year 2		

Frequency	Code	Response	Variable Name	Type/ Length
90	9993	no science courses on transcript in any year		
677	9994	no science course in year 2		
76	9995	no graded science course in year 2		
		Science Failure Index Year 3	**EASFIX3**	num 8
7936	0			
575		range 0.167 to 0.8		
648	1			
724	9992	no course-taking data in year 3		
65	9993	no science courses on transcript in any year		
2215	9994	no science course in year 3		
74	9995	no graded science course in year 3		
		Science Failure Index Year 4	**EASFIX4**	num 8
5124	0			
260		range 0.167 to 0.75		
368	1			
1306	9992	no course-taking data in year 4		
54	9993	no science courses on transcript in any year		
5045	9994	no science course in year 4		
80	9995	no graded science course in year 4		
		Science Failure Index Year 5	**EASFIX5**	num 8
197	0			
18		range 0.143 to 0.667		
40	1			
11655	9992	no course-taking data in year 5		
5	9993	no science courses on transcript in any year		
311	9994	no science course in year 5		
11	9995	no graded science course in year 5		
		Science Failure Index Year 6+	**EASFIX6**	num 8
32	0			
5		range 0.2 to 0.833		
2	1			

Frequency	Code	Response	Variable Name	Type/ Length
12133	9992	no course-taking data in year 6+		
2	9993	no science courses on transcript in any year		
60	9994	no science course in year 6+		
3	9995	no graded science course in year 6+		
Science Failure Index Across All Years			**EASFIXC**	num 8
8923	0			
2844		range 0.071 to 0.909		
270	1			
167	9993	no science courses on transcript in any year		
33	9995	no graded science course in years 1 to 6+		
Overall Failure Index Year 1			**EAOFIX1**	num 8
8794	0			
3232		range 0.042 to 0.944		
89	1			
122	9995	no graded course in year 1		
Overall Failure Index Year 2			**EAOFIX2**	num 8
8151	0			
3625		range 0.034 to 0.933		
103	1			
301	9992	no course-taking data in year 2		
57	9995	no graded course in year 2		
Overall Failure Index Year 3			**EAOFIX3**	num 8
7810	0			
3545		range 0.026 to 0.938		
94	1			
724	9992	no course-taking data in year 3		
64	9995	no graded course in year 3		
Overall Failure Index Year 4			**EAOFIX4**	num 8
8169	0			
2595		range 0.038 to 0.941		
85	1			

Frequency	Code	Response	Variable Name	Type/ Length
1306	9992	no course-taking data in year 4		
82	9995	no graded course in year 4		
Overall Failure Index Year 5			**EAOFIX5**	num 8
335	0			
208		range 0.037 to 0.938		
25	1			
11655	9992	no course-taking data in year 5		
14	9995	no graded course in year 5		
Overall Failure Index Year 6+			**EAOFIX6**	num 8
68	0			
25		range 0.067 to 0.867		
3	1			
12133	9992	no course-taking data in year 6+		
8	9995	no graded course in year 6+		
Overall Failure Index Across All Years			**EAOFIXC**	num 8
5871	0			
6250		range 0.014 to 0.971		
39	1			
77	9995	no graded course in years 1 to 6+		

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