

## 4. AN OVERVIEW OF THE SCHOOL PROGRAMS OF SECONDARY SCHOOL STUDENTS WITH DISABILITIES

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Although this report focuses on the classroom experiences of secondary school students with disabilities, those experiences take place in the larger context of students' overall school programs. It is helpful to have a broad outline of that larger context in order to understand variations in classroom experiences. This chapter provides that overview first by describing the grade levels of the students whose programs are outlined in this report and the extent to which they continue to receive special education services. The variety of courses taken by students with disabilities in middle and high school and the instructional settings for those courses are then described. Findings are presented for students with disabilities as a whole and for those who differ in grade level, primary disability category, and selected demographic characteristics, where significant.

### Grade Level

In the 2001-02 school year, the large majority of students represented in NLTS2 were at high school grade levels (Exhibit 4-1); only about one in eight students were in seventh or eighth grade, and 2% were not assigned to a grade level. These figures are consistent with findings presented in Chapter 3 that 14% of youth go to middle schools and 76% go to high schools (the remainder attend multilevel schools).

**Exhibit 4-1  
GRADE LEVELS OF STUDENTS  
WITH DISABILITIES IN THE 2001-02  
SCHOOL YEAR**

|                         | Percentage | Standard Error |
|-------------------------|------------|----------------|
| Seventh or eighth grade | 12.4       | 1.3            |
| Ninth grade             | 21.9       | 1.7            |
| Tenth grade             | 24.5       | 1.8            |
| Eleventh grade          | 23.2       | 1.7            |
| Twelfth grade           | 15.4       | 1.5            |
| Ungraded program        | 2.4        | .6             |

Source: NLTS2 Wave 1 student's school program survey.

### Receipt of Special Education Services

Data reported by state agencies to the U.S. Department of Education indicate that in a given school year, 3.5% of students who receive special education services and are age 14 or older discontinue those services and return to general education (U.S. Department of Education, 2002). NLTS2 data suggest a similar rate for the NLTS2 age group of 14- through 18-year-olds; more than 5% are reported by their schools to discontinue special education services in approximately a 16-month period, including almost 1% who receive disability-related accommodations under section

504 of the Vocational Rehabilitation Act (Exhibit 4-2). The slight difference in rates may result from the somewhat longer time frame covered by NLTS2 or from the fact that the age group for state-reported data includes students who remain in school past the age of 18, students who would be unlikely to discontinue special education services at that age.

When parents of students who no longer had an IEP were asked why they were not receiving special education services, 85% reported that students no longer needed or no longer qualified for services or had met their IEP goals. Parents' or youth's refusal of special education services was the reason the majority of other students no longer received them.

**Exhibit 4-2  
SPECIAL EDUCATION PARTICIPATION  
STATUS OF STUDENTS WITH DISABILITIES**

|  | Percentage | Standard<br>Error |
|--|------------|-------------------|
| Students with disabilities who in a 16-month period:                                 |            |                   |
| Continue their individualized education program (IEP) for special education services | 94.7       | .9                |
| Discontinue special education services but have a 504 plan for accommodations        | .7         | .3                |
| Discontinue special education services and do not have a 504 plan for accommodations | 4.6        | .9                |

Source: NLTS2 Wave 1 student's school program survey.

## Students' Course Taking

The education reform movement, with its emphasis on increasing academic standards and performance, has contributed to the fact that, between 1984 and 1998, 13 states raised the number of academic credits<sup>1</sup> required to receive a high school diploma (National Center for Education Statistics, 2001). By 1998, 26 states required students to earn at least four credits in language arts and three credits in social studies. In addition to those requirements, 14 states required students to earn 3 credits each in science and mathematics, and an additional 12 states required students to earn at least two credits in those subjects (National Center for Education Statistics, 2001).

In 1998, 76% of American high school graduates had earned at least four credits in language arts, three in social studies, and two each in science and mathematics. This is a dramatic increase in students in the general population earning this number and combination of academic credits; in 1982, only 32% of high school graduates had done so (National Center for Education Statistics, 2001).

NLTS2 findings demonstrate that the course-taking pattern of students with disabilities mirrors the heavy academic emphasis of students in the general population (Exhibit 4-3). Virtually all secondary school students with disabilities and all students in the general population take at least one academic subject in a given semester, with the vast majority of students with disabilities taking language arts (95%) and mathematics (92%). Social studies and science also are taken by most students with disabilities (88% and 83%). Rates of students with disabilities taking math and science are somewhat higher than those of students in the general population, whereas their rates of taking language arts or social studies are somewhat lower. A foreign language is taken less often than other kinds of academic courses by both students with disabilities and students in the general population, but it still is in the course schedule of approximately one in five students with disabilities (21%) and half of students in the general population. Differences between students with disabilities and the general population may result from the fact that NLTS2 includes a relatively small proportion of middle school students; only high school students are included in figures for the general population.

Among students with disabilities, academic courses are 59% of the kinds of courses students with disabilities take in a given semester, on average.

<sup>1</sup> Credits are measured in Carnegie units. The original source of the unit, the Carnegie Foundation, describes the unit, developed in 1906, as "a measure of the amount of time a student has studied a subject. For example, a total of 120 hours in one subject—meeting 4 or 5 times a week for 40 to 60 minutes, for 36 to 40 weeks each year—earns the student one 'unit' of high school credit. Fourteen units were deemed to constitute the minimum amount of preparation that may be interpreted as 'four years of academic or high school preparation'" (Carnegie Foundation, n.d.).

**Exhibit 4-3  
ACADEMIC COURSES TAKEN IN A SEMESTER  
BY STUDENTS WITH DISABILITIES AND  
STUDENTS IN THE GENERAL POPULATION**

|  | Students<br>with<br>Disabilities | General<br>Student<br>Population <sup>2</sup> |
|--|----------------------------------|---|
| Percentage taking:                                 |                                  |   |
| Any academics                                      | 98.6<br>(.5)                     | 100.0   |
| Language arts                                      | 95.2<br>(.9)                     | 100.0   |
| Mathematics  | 92.5<br>(1.1)                    | 87.5  |
| Science  | 83.1<br>(1.5)                    | 78.8  |
| Social studies                                     | 88.0<br>(1.3)                    | 94.5  |
| Foreign language                                   | 21.1<br>(1.7)                    | 50.0  |
| Average percentage of courses<br>that are academic | 59.3<br>(.7)                     | NA  |

Sources: NLTS2 Wave 1 student's school program survey and the 1998 NAEP High School Transcript Study (National Center for Education Statistics, 2001).

Standard errors are in parentheses.

Many students with disabilities also take vocational education courses<sup>3</sup> (61%; Exhibit 4-4), with occupationally specific vocational education being taken much more often than prevocational courses. More than half of students with disabilities (52%) take occupationally specific vocational courses in a given semester, whereas 34% take prevocational courses ( $p < .001$ ). Vocational education courses are about 13% of the courses students with disabilities take in a given semester, or about one course in a student's course schedule.

Students with disabilities are less likely than students in the general population to take vocational education. In addition, they are less likely than students in the general population to take occupationally specific vocational education (52% vs. 64%) but more likely to take prevocational education (34% vs. 15%).

Other traditionally nonacademic courses are included among the courses taken by 89% of secondary school students with disabilities, with physical education being the most common of these courses (72%). This is a higher rate of taking physical education than occurs among students in the general population (58%; National Center for Education Statistics, 2001). About half of students with disabilities and students in the general population take a fine arts course, and more than a third of students with disabilities take life skills or study skills. These courses make up 27% of the kinds of courses taken in a given semester by the typical student with disabilities.

This pattern of course taking by students with disabilities differs markedly from the courses taken by students in the original National Longitudinal Transition Study (NLTS),<sup>4</sup> which first

<sup>2</sup> The percentage of students in the general population who take a given kind of course in a single semester is estimated from the mean number of credits earned by high school graduates over 4 years. For example, students in the general population earn an average of 3.5 credits in mathematics (National Center for Education Statistics, 2001), the equivalent of taking 3.5 1-year courses over 4 years. Dividing the total credits earned by 4 years results in a probability of 87.5% that students will be taking mathematics at a given point in high school. Standard errors are not available from this calculation.

<sup>3</sup> Although "career and technical education" is becoming a more common term for vocational education, "vocational education" is used here because it is the term used in questionnaires requesting information from school staff about the courses taken by students with disabilities.

<sup>4</sup> NLTS was designed and conducted for the U. S. Office of Special Education Programs between 1984 and 1993. It included a nationally representative sample of students who were ages 15 through 23 when the first data were collected in 1987. Many of its design features are mirrored in NLTS2 to permit comparisons between them. Comparisons between school data collected in NLTS and NLTS2 involve only the age group included in both studies—those 14 to 18 years old.

**Exhibit 4-4  
NONACADEMIC COURSES TAKEN IN A  
SEMESTER BY STUDENTS WITH DISABILITIES  
AND STUDENTS IN THE GENERAL POPULATION**

|   | Students<br>with<br>Disabilities | General<br>Student<br>Population <sup>5</sup> |
|---|----------------------------------|---|
| Percentage taking:  |                                  |   |
| Any vocational education                                    | 61.3<br>(2.0)                    | 79.5  |
| Prevocational education                                     | 34.2<br>(1.9)                    | 15.0  |
| Occupationally specific vocational education                | 52.2<br>(2.0)                    | 64.2  |
| Average percentage of courses that are vocational education | 13.3<br>(.5)                     | NA  |
| Percentage taking:  |                                  |   |
| Any other nonacademics                                      | 89.4<br>(1.3)                    | NA  |
| Physical education  | 71.7<br>(1.8)                    | 58.2  |
| Fine arts   | 48.7<br>(2.0)                    | 47.2  |
| Study skills  | 36.5<br>(1.9)                    | NA  |
| Life skills/social skills                                   | 35.4<br>(1.9)                    | NA  |
| Average percentage of courses that are other nonacademics   | 27.4<br>(.6)                     | NA  |

Source: NLTS2 Wave 1 student's school program survey and the 1998 NAEP High School Transcript Study (National Center for Education Statistics, 2001).

Standard errors are in parentheses.

collected course-taking information on students with disabilities in 1987. When comparisons are made for the age group of students with disabilities that was common to the two studies—students who were 14 to 18—sizable increases over time in taking several kinds of academic courses are apparent. The largest increases are noted for students with disabilities taking science and foreign language courses (21 and 15 percentage points, respectively,  $p < .001$ ). These changes bode well for greater participation in postsecondary education because taking such courses has been demonstrated to increase substantially the odds of going on to a 2-year or 4-year college in the early years after high school (Wagner, Blackorby, Cameto, & Newman, 1993). Increases in academic course taking correspond to a 7-percentage-point decline in taking vocational education courses ( $p < .01$ ).

The course-taking pattern of students with disabilities varies across the middle and high school grades<sup>6</sup> for some kinds of courses (Exhibit 4-5). There are no differences in the rates at which students with disabilities at different grade levels take language arts or foreign language

courses. However, somewhat fewer juniors and seniors than students in middle school or the early high school grades take mathematics (85% vs. 97% to 99%,  $p < .001$ ). An even greater difference is seen regarding science course taking; only about two-thirds of seniors take science courses, compared with 90% or more of students with disabilities at other grade levels ( $p < .001$ ). Most states require that students take 2 years of science to graduate, a requirement that many students with disabilities may have fulfilled before their senior year.

<sup>5</sup> See footnote 2.

<sup>6</sup> For convenience, grades 7 and 8 are referred to as middle school grade levels, and grades 9 and above are referred to as high school grade levels.

**Exhibit 4-5  
COURSES TAKEN BY STUDENTS WITH DISABILITIES,  
BY STUDENT'S GRADE LEVEL**

|   | 7th or<br>8th<br>Grade | 9th<br>Grade  | 10th<br>Grade | 11th or<br>12th<br>Grade |
|---|------------------------|---------------|---------------|--------------------------|
| Percentage taking course in specified setting               |                        |               |               |                          |
| Academics   |                        |               |               |                          |
| Mathematics   | 99.3<br>(.9)           | 98.0<br>(1.3) | 97.0<br>(1.4) | 85.1<br>(2.5)            |
| Science   | 98.3<br>(1.4)          | 91.9<br>(2.5) | 90.0<br>(2.4) | 69.4<br>(3.2)            |
| Social studies  | 97.4<br>(1.8)          | 85.8<br>(3.2) | 88.0<br>(2.7) | 88.2<br>(2.2)            |
| Vocational education  | 58.3<br>(1.5)          | 60.2<br>(1.3) | 62.3<br>(1.4) | 58.5<br>(1.3)            |
| Any vocational education                                    | 54.8<br>(2.1)          | 54.2<br>(2.1) | 57.2<br>(.4)  | 68.0<br>(.5)             |
| Occupationally specific vocational education                | 51.1<br>(5.6)          | 44.8<br>(4.4) | 46.7<br>(4.0) | 58.5<br>(3.4)            |
| Average percentage of courses that are vocational education | 10.1<br>(1.1)          | 10.5<br>(1.0) | 11.7<br>(.9)  | 16.3<br>(1.0)            |
| Other nonacademics  |                        |               |               |                          |
| Any nonacademics  | 95.6<br>(4.1)          | 95.9<br>(1.8) | 88.1<br>(2/6) | 84.1<br>(2.5)            |
| Fine arts   | 77.3<br>(4.7)          | 39.9<br>(4.3) | 47.7<br>(4.0) | 44.0<br>(3.4)            |
| Physical education  | 89.6<br>(3.4)          | 86.2<br>(3.1) | 68.8<br>(3.7) | 59.4<br>(3.4)            |
| Average percentage of courses that are other nonacademics   | 31.6<br>(1.3)          | 29.3<br>(1.1) | 26.1<br>(1.1) | 25.2<br>(1.0)            |

Source: NLTS2 Wave 1 student's school program survey.  
Standard errors are in parentheses.

By fulfilling other course requirements, students with disabilities in the later high school years apparently have time for vocational training. Vocational education is taken significantly more often by juniors and seniors (68%) than by students at any other grade level (54% to 57%,  $p < .05$ ). This difference is accounted for entirely by a higher rate of taking occupationally specific vocational education among juniors and seniors.

In contrast, taking other nonacademic courses is much less common in the upper high school grades than earlier. For example, physical education is in the course schedules of 90% of middle school students with disabilities and 86% of freshmen, but is taken by only 69% of sophomores and 59% of juniors and seniors with disabilities ( $p < .001$  comparing sophomores through seniors with younger students). The rate of taking fine arts by freshmen is about half that of middle school students (40% vs. 77%,  $p < .001$ ) and remains relatively low through high school.

### Instructional Settings

The courses students with disabilities include in their school programs help determine the combination of instructional settings they experience in a school day because some kinds of courses are much more likely to be taught in general education classes, whereas special education settings are more common for others. For example, secondary school students with disabilities are about equally likely to take language arts and mathematics in general education and special education classrooms (Exhibit 4-6). However, science is much more likely to be taken in general education classes (66% vs. 37%,  $p < .001$ ), as are social studies (64% vs. 39%,  $p < .001$ ) and foreign language courses (85% vs. 14%,  $p < .001$ ).

Similar differences are apparent among vocational education classes. Whereas prevocational education is about equally likely to be taken in general education or special education classes, occupationally specific vocational education is much more likely to be the purview of general than of special education (73% vs. 28%,  $p < .001$ ).

**Exhibit 4-6**  
**COURSES TAKEN BY STUDENTS WITH DISABILITIES, BY INSTRUCTIONAL SETTING**

|   | General<br>Education | Special<br>Education | Individual<br>Instruction | Community/<br>Other Setting |
|---|----------------------|----------------------|---------------------------|-----------------------------|
| Percentage taking course(s) in setting <sup>a</sup> |                      |                      |                           |                             |
| Academics   |                      |                      |                           |                             |
| Any academics                                       | 69.2<br>(1.9)        | 58.2<br>(2.0)        | 1.3<br>(.5)               | 2.0<br>(.6)                 |
| Language arts                                       | 48.9<br>(2.1)        | 54.4<br>(2.1)        | 1.1<br>(.4)               | 1.4<br>(.5)                 |
| Mathematics   | 52.7<br>(2.1)        | 50.6<br>(2.1)        | 1.1<br>(.4)               | 1.1<br>(.4)                 |
| Science   | 66.1<br>(2.2)        | 37.1<br>(2.2)        | .9<br>(.4)                | .2<br>(.2)                  |
| Social studies                                      | 63.9<br>(2.1)        | 38.9<br>(2.2)        | 1.1<br>(.5)               | 1.0<br>(.4)                 |
| Foreign language                                    | 85.1<br>(3.3)        | 13.5<br>(3.2)        | .7<br>(.8)                | .9<br>(.9)                  |
| Vocational education                                |                      |                      |                           |                             |
| Any vocational education                            | 70.6<br>(2.3)        | 34.8<br>(2.4)        | .7<br>(.4)                | 7.3<br>(1.0)                |
| Occupationally specific vocational<br>education     | 73.4<br>(2.5)        | 27.9<br>(2.5)        | .8<br>(.5)                | 6.0<br>(1.3)                |
| Prevocational education                             | 53.1<br>(3.3)        | 46.5<br>(3.3)        | .7<br>(.5)                | 7.7<br>(1.7)                |
| Other nonacademics                                  |                      |                      |                           |                             |
| Any nonacademics                                    | 74.9<br>(1.8)        | 41.2<br>(2.0)        | 1.0<br>(.4)               | 3.7<br>(.8)                 |
| Fine arts   | 87.0<br>(1.9)        | 12.4<br>(1.9)        | .3<br>(.3)                | 1.4<br>(.7)                 |
| Physical education                                  | 87.9<br>(1.5)        | 12.3<br>(1.6)        | .4<br>(.3)                | .7<br>(.4)                  |
| Life skills/social skills                           | 35.7<br>(3.0)        | 60.6<br>(3.1)        | 1.7<br>(.8)               | 8.9<br>(1.8)                |
| Study skills  | 21.0<br>(2.8)        | 79.1<br>(2.8)        | .8<br>(.6)                | 1.2<br>(.7)                 |

Source: NLTS2 Wave 1 student's school program survey.

<sup>a</sup> Includes only students with disabilities taking the kind of course specified.

Standard errors are in parentheses.

Among other nonacademic classes, general education classes are much more likely than special education classes to be the setting for fine arts (87% vs. 12%,  $p < .001$ ) and physical education (88% vs. 12%,  $p < .001$ ), whereas the reverse is true for life skills (36% general education vs. 61% special education,  $p < .001$ ) and study skills (21% vs. 79%,  $p < .001$ ). Individual and community or other settings are not common for any kind of course, although between 6% and 9% of students with disabilities take vocational education or life skills instruction in community or other settings.

Comparisons between NLTS and NLTS2 show little overall change in students with disabilities participating at all in general education classes, but there is a 9-percentage point increase in taking academic courses in general education classes. This increase in general education academic class participation is accompanied by a 21-percentage-point decline in

students with disabilities taking any courses in special education classrooms ( $p < .001$ ), including an 11-percentage-point drop in students taking academic special education courses ( $p < .001$ ). In contrast, students who take nonacademic courses other than vocational education (e.g., study skills, art) are increasingly likely to have them in special education classes (a 27-percentage-point increase,  $p < .001$ ).

**Exhibit 4-7**  
**INSTRUCTIONAL SETTINGS IN SCHOOL PROGRAMS OF STUDENTS WITH DISABILITIES**

|   | Percentage | Standard Error |
|---|------------|----------------|
| <b>General education</b>  |            |                |
| Taking the following percentages of courses in general education classes: |            |                |
| None  | 12.4       | 1.3            |
| .1% to 33%  | 20.6       | 1.6            |
| 33.1% to 66%  | 20.5       | 1.6            |
| 66.1% to 99.9%  | 19.3       | 1.6            |
| 100%  | 27.2       | 1.8            |
| Average proportion of courses in general education classes                | 60.2       | 1.4            |
| <b>Special education</b>  |            |                |
| Taking the following percentages of courses in special education classes: |            |                |
| None  | 30.2       | 1.9            |
| .1% to 33%  | 27.5       | 1.8            |
| 33.1% to 66%  | 23.2       | 1.7            |
| 66.1% to 99.9%  | 9.9        | 1.2            |
| 100%  | 9.2        | 1.2            |
| Average proportion of courses in special education classes                | 36.6       | 1.4            |
| <b>Other settings</b>   |            |                |
| Taking the following percentages of courses in other settings             |            |                |
| None  | 91.8       | 1.1            |
| .1% to 33%  | 5.4        | .9             |
| 33.1% to 66%  | 1.0        | .4             |
| 66.1% to 99.9%  | .3         | .2             |
| 100%  | 1.5        | .5             |
| Average proportion of courses in other settings                           | 3.2        | .6             |

Source: NLTS2 Wave 1 student's school program survey.

Looking at students' overall school programs in 2001, it is clear that most students with disabilities take classes in both general and special education settings (Exhibit 4-7). Although more than one-fourth of students with disabilities (27%) take classes only in general education settings and 9% take classes only in special education settings, nearly two-thirds of students with disabilities take courses in both settings. In fact, on average, general education courses make up 60% of the kinds of courses students with disabilities take, and special education courses comprise 37%.

There are few grade-level differences in instructional settings. However, the involvement of students with disabilities in general education courses is somewhat lower for students in the later high school years (87% take at least one general education course) than in middle school or ninth grade (95% and 93%, respectively,  $p < .05$ ). Involvement in settings other than general or special education classes is commensurately higher among juniors and seniors (11% take at least one course in such settings) than among freshmen and sophomores (5%,  $p < .05$ ). Courses in other settings also are a larger percentage of courses taken by upperclassmen (5%) than younger students (1% or 2%,  $p < .05$ ), although

they constitute a small percentage of the types of courses taken at any grade level.

## Disability Variations in Students' School Programs

Many of the aspects of students' school programs discussed thus far differ markedly among students who have different primary disability classifications.

**Discontinuation of special education services.** The rate at which students with disabilities discontinue special education services in approximately a 16-month period varies widely. No students with multiple disabilities discontinue special education services, and no more than 1% of students with mental retardation, autism, or deaf-blindness do so. Discontinuation rates are between 2% and 6% of students with learning disabilities; emotional disturbances; traumatic brain injuries; or hearing, visual, orthopedic, or other health impairments. Students with speech impairments stand out in sharp contrast to these other categories—22% of them discontinue special education services in about a 16-month period. The percentage of students who no longer have an IEP but have 504-plan accommodations for a disability ranges from no students with multiple disabilities to 2% of those with visual impairments.

**Academic course taking.** Students with different primary disability classifications have quite different patterns of secondary school course taking (Exhibit 4-8). For most disability categories, 95% or more of students take one or more academic classes. Only among students with autism, multiple disabilities, or deaf-blindness does enrollment in academic courses fall lower (87% to 92%,  $p < .05$  to  $p < .001$  compared with students with learning disabilities, for example). Students in those three categories are generally the least likely to take each of the individual types of academic classes, and, along with students with mental retardation, they have the lowest concentration of academic course taking (half or fewer of the courses they take are academic, compared with 60% or more for students in most other categories;  $p < .001$  compared with students with learning disabilities).

**Exhibit 4-8**  
**ACADEMIC COURSE TAKING, BY DISABILITY CATEGORY**

|   | Learning Dis-ability | Speech/ Language Impair-ment | Mental Retar-dation | Emo-tional Distur-bance | Hearing Impair-ment | Visual Impair-ment | Ortho-pedic Impair-ment | Other Health Impair-ment | Autism        | Trau-matic Brain Injury | Multiple Disabili-ties | Deaf-Blind-ness |
|---|----------------------|------------------------------|---------------------|-------------------------|---------------------|--------------------|-------------------------|--------------------------|---------------|-------------------------|------------------------|-----------------|
| Percentage taking:                              |                      |                              |                     |                         |                     |                    |                         |                          |               |                         |                        |                 |
| Any academics                                   | 99.6<br>(.4)         | 99.4<br>(.5)                 | 95.7<br>(1.3)       | 98.6<br>(.9)            | 99.8<br>(.4)        | 95.8<br>(1.9)      | 94.7<br>(1.5)           | 98.4<br>(.8)             | 92.2<br>(1.8) | 97.8<br>(1.7)           | 87.1<br>(2.5)          | 91.1<br>(3.6)   |
| Language arts                                   | 95.4<br>(1.3)        | 97.8<br>(1.0)                | 93.5<br>(1.6)       | 96.1<br>(1.5)           | 99.1<br>(0.7)       | 94.7<br>(2.1)      | 91.2<br>(1.9)           | 97.5<br>(1.0)            | 89.2<br>(2.1) | 95.3<br>(2.5)           | 84.5<br>(2.7)          | 89.1<br>(3.9)   |
| Mathematics                                     | 92.7<br>(1.6)        | 94.7<br>(1.5)                | 92.3<br>(1.7)       | 93.1<br>(2.0)           | 95.8<br>(1.6)       | 91.1<br>(2.7)      | 88.8<br>(2.1)           | 93.4<br>(1.5)            | 89.5<br>(2.1) | 92.7<br>(3.1)           | 81.6<br>(2.9)          | 84.9<br>(4.5)   |
| Science   | 84.8<br>(2.3)        | 87.3<br>(2.2)                | 73.8<br>(2.9)       | 84.3<br>(3.0)           | 85.6<br>(2.8)       | 81.1<br>(3.8)      | 78.5<br>(2.8)           | 88.1<br>(2.0)            | 66.9<br>(3.2) | 76.7<br>(5.0)           | 66.1<br>(3.6)          | 71.2<br>(5.7)   |
| Social studies                                  | 90.2<br>(1.9)        | 90.4<br>(1.9)                | 74.7<br>(2.9)       | 93.2<br>(2.0)           | 88.1<br>(2.5)       | 88.8<br>(3.0)      | 82.8<br>(2.6)           | 91.1<br>(1.8)            | 69.1<br>(3.1) | 86.0<br>(4.1)           | 69.1<br>(3.5)          | 74.4<br>(5.5)   |
| Foreign language                                | 24.3<br>(2.7)        | 31.0<br>(3.0)                | 8.7<br>(1.8)        | 15.3<br>(2.9)           | 27.1<br>(3.4)       | 35.5<br>(4.5)      | 24.5<br>(2.9)           | 19.7<br>(2.5)            | 12.4<br>(2.2) | 16.9<br>(4.3)           | 8.9<br>(2.1)           | 10.1<br>(3.8)   |
| Average percentage of courses that are academic | 61.6<br>(1.0)        | 64.0<br>(1.1)                | 48.6<br>(1.2)       | 59.8<br>(1.4)           | 60.9<br>(2.0)       | 60.6<br>(2.0)      | 57.5<br>(1.5)           | 60.9<br>(1.1)            | 45.9<br>(1.4) | 57.2<br>(2.4)           | 41.7<br>(1.6)          | 49.9<br>(2.8)   |

Source: NLTS2 Wave 1 student's school program survey.  
Standard errors are in parentheses.



Students in each category are most likely to take language arts and math and least likely to take a foreign language. Foreign language enrollment also is the most variable across categories, with a 27-percentage-point difference between the category of students most likely to take such a course (36% of students with visual impairments) and those least likely to do so (9% of students with mental retardation or multiple disabilities,  $p < .001$ ).

**Vocational education course taking.** There is greater variation across disability categories in enrollment in any vocational education class (Exhibit 4-9), ranging from about half of students with speech impairments to 80% of students with multiple disabilities ( $p < .001$ ). Generally, students who have lower concentrations of academic courses have higher enrollments in vocational courses. Occupationally specific vocational education is much more common than prevocational education for students in several categories. For example, half of students with learning disabilities take occupationally specific classes, but only 30% take prevocational education ( $p < .001$ ). A similar pattern is evident for students with speech, hearing, visual, orthopedic, or other health impairments, emotional disturbances, or traumatic brain injuries.

This contrasts sharply with the pattern for students with mental retardation, who are about equally likely to take the two kinds of vocational education, as are students with autism, multiple disabilities, and deaf-blindness. These students also take among the highest percentage of vocational courses.

**Exhibit 4-9**  
**VOCATIONAL EDUCATION COURSE TAKING, BY DISABILITY CATEGORY**

|   | Learning Disability | Speech/ Language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Autism        | Traumatic Brain Injury | Multiple Disabilities | Deaf-Blindness |
|---|---------------------|-----------------------------|--------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------------|---------------|------------------------|-----------------------|----------------|
| Percentage taking:  |                     |                             |                    |                       |                    |                   |                       |                         |               |                        |                       |                |
| Any vocational education                                    | 58.6<br>(3.1)       | 51.1<br>(3.3)               | 77.8<br>(2.7)      | 60.0<br>(3.9)         | 61.5<br>(3.8)      | 52.8<br>(4.7)     | 59.7<br>(3.3)         | 58.8<br>(3.0)           | 76.9<br>(2.8) | 63.7<br>(5.6)          | 79.2<br>(3.0)         | 66.1<br>(6.0)  |
| Prevocational education                                     | 29.7<br>(2.8)       | 26.0<br>(2.9)               | 59.3<br>(3.2)      | 31.1<br>(3.7)         | 32.6<br>(3.6)      | 31.4<br>(4.3)     | 34.8<br>(3.2)         | 28.9<br>(2.8)           | 60.7<br>(3.2) | 40.8<br>(5.7)          | 63.5<br>(3.6)         | 47.2<br>(6.3)  |
| Occupationally specific vocational education                | 50.5<br>(3.1)       | 44.2<br>(3.2)               | 62.1<br>(3.1)      | 51.2<br>(4.0)         | 55.1<br>(3.8)      | 44.1<br>(4.6)     | 49.9<br>(3.4)         | 52.0<br>(3.1)           | 61.1<br>(3.2) | 58.4<br>(5.7)          | 63.5<br>(3.6)         | 50.3<br>(6.3)  |
| Average percentage of courses that are vocational education |                     |                             |                    |                       |                    |                   |                       |                         |               |                        |                       |                |
|   | 12.6<br>(.8)        | 10.4<br>(.8)                | 18.0<br>(.9)       | 12.0<br>(1.0)         | 12.7<br>(.9)       | 10.5<br>(1.1)     | 12.8<br>(.8)          | 13.2<br>(1.0)           | 18.8<br>(.9)  | 14.1<br>(1.5)          | 18.8<br>(1.0)         | 14.2<br>(1.5)  |

Source: NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

**Other nonacademic course taking.** A large majority of students in all disability categories take nonacademic courses other than vocational education (Exhibit 4-10), ranging from 87% of students with orthopedic or other health impairments to 96% of students with autism or multiple disabilities ( $p < .01$ ). Physical education is the most commonly taken nonacademic course for all disability categories. However, two patterns emerge regarding other nonacademic courses. For students with learning disabilities and speech, hearing, visual, orthopedic, or other health impairments, the second most commonly taken nonacademic course is fine arts, significantly

**Exhibit 4-10**  
**OTHER NONACADEMIC COURSE TAKING, BY DISABILITY CATEGORY**

|   | Learning Disability | Speech/Language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Autism        | Traumatic Brain Injury | Multiple Disabilities | Deaf-Blindness |
|---|---------------------|----------------------------|--------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------------|---------------|------------------------|-----------------------|----------------|
| Percentage taking:  |                     |                            |                    |                       |                    |                   |                       |                         |               |                        |                       |                |
| Any other nonacademics  | 88.9<br>(1.9)       | 87.8<br>(2.1)              | 93.1<br>(1.6)      | 87.8<br>(2.6)         | 89.9<br>(2.3)      | 87.7<br>(3.1)     | 87.4<br>(2.2)         | 87.4<br>(2.1)           | 95.6<br>(1.4) | 89.0<br>(3.6)          | 96.5<br>(1.4)         | 91.9<br>(3.4)  |
| Fine arts   | 47.7<br>(3.1)       | 52.8<br>(3.2)              | 50.7<br>(3.2)      | 44.8<br>(3.9)         | 54.5<br>(3.8)      | 59.8<br>(4.6)     | 53.8<br>(3.3)         | 51.6<br>(3.1)           | 62.6<br>(3.2) | 46.1<br>(5.8)          | 62.9<br>(3.6)         | 60.9<br>(6.1)  |
| Physical education  | 70.4<br>(2.8)       | 72.4<br>(2.9)              | 77.6<br>(2.7)      | 71.4<br>(3.6)         | 75.9<br>(3.3)      | 66.7<br>(4.4)     | 63.9<br>(3.2)         | 70.9<br>(2.8)           | 74.4<br>(2.9) | 69.8<br>(5.3)          | 83.2<br>(2.8)         | 72.9<br>(5.6)  |
| Life skills/social skills                                     | 26.2<br>(2.7)       | 22.4<br>(2.7)              | 72.6<br>(2.9)      | 45.5<br>(3.9)         | 26.2<br>(3.4)      | 40.5<br>(4.6)     | 39.9<br>(3.3)         | 26.4<br>(2.7)           | 70.9<br>(3.0) | 44.7<br>(5.8)          | 74.8<br>(3.2)         | 65.7<br>(5.9)  |
| Study skills  | 36.8<br>(3.0)       | 31.7<br>(3.0)              | 34.4<br>(3.1)      | 40.0<br>(3.9)         | 33.8<br>(3.6)      | 30.6<br>(4.3)     | 34.6<br>(3.2)         | 35.6<br>(3.0)           | 34.5<br>(3.1) | 42.4<br>(5.7)          | 38.6<br>(3.6)         | 26.7<br>(5.5)  |
| Average percentage of all courses that are other nonacademics | 25.9<br>(.8)        | 25.6<br>(.9)               | 33.4<br>(1.0)      | 28.2<br>(1.1)         | 26.4<br>(1.0)      | 28.8<br>(1.6)     | 29.7<br>(1.2)         | 25.9<br>(.8)            | 35.3<br>(1.1) | 38.6<br>(1.8)          | 39.5<br>(1.3)         | 35.9<br>(2.7)  |

Source: NLTS2 Wave 1 student's school program survey.  
Standard errors are in parentheses.

outranking enrollment in study skills or life skills courses (e.g., 48% of students with learning disabilities take fine arts courses, compared with 37% taking study skills and 26% taking life skills courses,  $p < .05$  and  $p < .001$ ). For other categories, students either are equally likely to take fine arts or study or life skills (e.g., 45%, 46%, and 40% for students with emotional disturbances) or are more likely to take a skills course than fine arts (e.g., 73% of students with mental retardation take life skills, compared with 51% taking fine arts,  $p < .001$ ). Concentrations of other nonacademic courses range from about one-fourth of courses taken by students with learning disabilities or speech impairments, for example, to more than one-third of courses taken by students with autism, traumatic brain injuries, multiple disabilities, or deaf-blindness ( $p < .001$ ).

**Instructional settings.** Participation in various instructional settings varies more widely across disability categories than does course taking (Exhibit 4-11). There is a 55-percentage-point difference across categories in the extent to which students with disabilities participate in any general education classes (40% to 95%,  $p < .001$ ) and a 45-percentage-point difference in participation in special education settings (50% to 95%,  $p < .001$ ). Many fewer students in any category participate in community or other instructional settings, but the difference across categories is still sizable (2% to 20%,  $p < .001$ ).

Students who are least likely to take academic courses also are least likely to take any general education courses; 40% of students with deaf-blindness, 56% of students with multiple disabilities, and 62% of those with autism take any general education course, compared with more than three-fourths of students in 7 of the 12 categories ( $p < .001$  for all comparisons). They, along with students with mental retardation, also have the smallest proportion of their courses spent in general education classrooms (fewer than one-third, compared with more than half for most other categories,  $p < .001$ ).

**Exhibit 4-11**  
**INSTRUCTIONAL SETTINGS, BY DISABILITY CATEGORY**

|   | Learning Disability | Speech/Language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Autism        | Traumatic Brain Injury | Multiple Disabilities | Deaf-Blindness |
|---|---------------------|----------------------------|--------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------------|---------------|------------------------|-----------------------|----------------|
| Percentage with any general education classes                             | 94.0<br>(1.5)       | 95.4<br>(1.4)              | 69.3<br>(3.0)      | 78.5<br>(3.3)         | 77.8<br>(3.2)      | 73.4<br>(4.1)     | 83.6<br>(2.5)         | 90.4<br>(1.8)           | 62.4<br>(3.2) | 80.3<br>(4.6)          | 55.7<br>(3.7)         | 40.2<br>(6.2)  |
| Average percentage of courses that are taken in general education classes | 67.7<br>(1.9)       | 75.7<br>(2.0)              | 31.1<br>(2.0)      | 50.4<br>(3.0)         | 59.8<br>(3.0)      | 62.8<br>(4.0)     | 57.9<br>(2.6)         | 66.9<br>(2.1)           | 32.5<br>(2.4) | 48.2<br>(4.1)          | 23.5<br>(2.1)         | 25.6<br>(4.7)  |
| Percentage with any special education classes                             | 65.8<br>(2.9)       | 50.1<br>(3.3)              | 91.7<br>(1.8)      | 74.0<br>(3.5)         | 66.9<br>(3.6)      | 51.7<br>(4.7)     | 67.9<br>(3.2)         | 62.5<br>(3.0)           | 86.1<br>(2.3) | 78.8<br>(4.7)          | 95.0<br>(1.6)         | 86.8<br>(4.3)  |
| Average percentage of courses that are taken in special education classes | 29.6<br>(1.8)       | 23.5<br>(2.0)              | 64.9<br>(2.0)      | 44.3<br>(2.9)         | 39.3<br>(3.0)      | 33.9<br>(3.8)     | 38.5<br>(2.5)         | 28.8<br>(1.9)           | 61.8<br>(2.3) | 47.7<br>(4.0)          | 70.8<br>(2.2)         | 70.0<br>(4.7)  |
| Percentage with any courses in community or other settings                | 6.6<br>(1.5)        | 2.5<br>(1.0)               | 13.7<br>(2.2)      | 10.2<br>(2.4)         | 3.7<br>(1.5)       | 10.9<br>(2.9)     | 9.6<br>(2.0)          | 8.4<br>(1.7)            | 18.9<br>(2.6) | 12.6<br>(3.9)          | 19.8<br>(3.0)         | 13.0<br>(4.2)  |
| Average percentage of courses that are taken in other settings            | 2.7<br>(.8)         | .8<br>(.4)                 | 4.0<br>(.8)        | 5.3<br>(1.6)          | .9<br>(.4)         | 3.3<br>(1.3)      | 3.6<br>(1.0)          | 4.3<br>(1.1)            | 5.6<br>(.9)   | 4.1<br>(1.6)           | 5.6<br>(1.1)          | 4.5<br>(1.8)   |

Source: NLTS2 Wave 1 student's school program survey.  
Standard errors are in parentheses.

Predictably, those spending less time in general education classrooms spend more time in special education and other settings. Eighty-six percent to 95% of students with mental retardation, autism, multiple disabilities, or deaf-blindness take at least some of their classes in special education classrooms, typically the majority of their classes (62% to 71% of courses are taken there). These figures compare with about two-thirds or fewer of students with learning disabilities or speech, hearing, visual, orthopedic, or other health impairments taking special education classes ( $p < .001$ ) and taking from 24% to 39% of their courses in those classes ( $p < .001$ ).

There is a less clear distinction regarding instruction in community or other settings. For example, students with visual or orthopedic impairments are as likely to participate in other settings as students with deaf-blindness or traumatic brain injuries, although rates of participation of students with speech or hearing impairments are much lower (2% and 4%,  $p < .05$  to  $p < .001$ ).

### Demographic Variations in Students' School Programs

There are no differences in participation in various courses or instructional settings for students who differ by gender and only a few differences by household income or racial/ethnic background (Exhibit 4-12). Students from households with incomes of more than \$50,000 per year are more likely to take foreign language courses than are less affluent students (27% vs. 16% and 18%,  $p < .05$ ), and their courses are more likely to concentrate in general education settings (an average of 66% of their courses vs. 53%,  $p < .01$ ). Conversely, the most affluent youth are less likely than the lowest-income students to take any special education courses (63% vs. 78%,  $p < .001$ ), and they tend to have fewer of them (31% of courses vs. 44%,  $p < .001$ ).

**Exhibit 4-12**  
**COURSE TAKING AND INSTRUCTIONAL SETTINGS OF STUDENTS WITH DISABILITIES,**  
**BY HOUSEHOLD INCOME AND RACE/ETHNICITY**

|   | Income           |                      |                    | Race/Ethnicity |                  |               |
|---|------------------|----------------------|--------------------|----------------|------------------|---------------|
|   | \$25,000 or Less | \$25,001 to \$50,000 | More than \$50,000 | White          | African American | Hispanic      |
| <b>Academics</b>  |                  |                      |                    |                |                  |               |
| Percentage taking a foreign language                                      | 17.6<br>(2.8)    | 16.2<br>(3.0)        | 27.2<br>(3.5)      | 18.6<br>(2.0)  | 15.9<br>(3.3)    | 40.0<br>(5.9) |
| Average percentage of courses that are academic                           | 57.4<br>(1.3)    | 60.0<br>(1.5)        | 60.8<br>(1.4)      | 59.5<br>(.9)   | 56.3<br>(1.5)    | 63.0<br>(2.0) |
| <b>General education</b>  |                  |                      |                    |                |                  |               |
| Average percentage of courses that are taken in general education classes | 53.2<br>(2.6)    | 59.5<br>(2.8)        | 66.5<br>(2.7)      | 63.9<br>(1.7)  | 50.1<br>(3.1)    | 58.7<br>(4.3) |
| <b>Special education</b>  |                  |                      |                    |                |                  |               |
| Percentage taking any courses   | 78.2<br>(3.0)    | 68.4<br>(3.8)        | 63.2<br>(3.8)      | 65.3<br>(2.4)  | 80.7<br>(3.5)    | 73.2<br>(5.3) |
| Average percentage of courses that are taken in special education classes | 44.0<br>(2.5)    | 35.2<br>(2.7)        | 30.8<br>(2.5)      | 32.3<br>(1.6)  | 47.0<br>(3.0)    | 39.8<br>(4.2) |

Source: NLTS2 Wave 1 student's school program survey.  
Standard errors are in parentheses.

Racial/ethnic differences include a much higher rate of foreign language course taking among Hispanic students with disabilities (40%) than among others (19% and 16%,  $p < .001$ ). This difference may result in part because English as a second language (ESL) classes generally are classified as foreign language courses (National Center for Education Statistics, 2001). Academic courses also are a larger percentage of the courses Hispanic students take (63%) than they are of courses taken by African-American students with disabilities (56%,  $p < .01$ ). The other significant differences are between white and African-American students with disabilities. On average, white students take a higher proportion of their courses in general education classrooms than African-American students (64% vs. 50%,  $p < .001$ ). Consistent with this pattern, white students are less likely than African-American students to take any special education courses (65% vs. 81%,  $p < .001$ ), and those courses tend to be a smaller percentage of their course load (32% vs. 47%,  $p < .001$ ). These differences between African-American and white students may result in part from the particularly high prevalence of African-American students in the category of mental retardation (please see Appendix B), the category of students who take relatively fewer courses in general education and more courses in special education classes.

## Summary

In 1986, then Assistant Secretary for the Office of Special Education and Rehabilitative Services, Madeleine Will, declared the effective education of students with disabilities “a shared responsibility” of the general and special education systems (Will, 1986). That declaration was a challenge to both systems, which had not shared students to a great extent, let alone shared a sense of responsibility for their outcomes. The ensuing “inclusion movement” sought to have more students with disabilities placed in general education classes. Policy initiatives since then, including those embedded in the Individuals with Disabilities Education Act Amendments of

1997, have extended the notion of inclusion to encompass the participation of students with disabilities in the kinds of courses and curricula accessed by the general student population.

NLTS2 findings suggest that much progress has been made in encouraging students with disabilities to take challenging academic courses and in expanding their participation in general education classes. Virtually all students with disabilities take academic classes, which constitute 60% of their coursework, on average. In fact, comparisons of NLTS2 findings with those of the original NLTS show a dramatic increase in students with disabilities taking challenging courses often associated with preparation for postsecondary education (Wagner, Newman, & Cameto, forthcoming).

A vocational education course, usually one that is occupationally specific, is on the course schedules of almost two-thirds of students with disabilities, with higher participation among high school juniors and seniors. However, vocational course taking has declined markedly over time, corresponding to the increase in academic course taking (Wagner, Newman, & Cameto, forthcoming). Although this decline may be the inevitable outgrowth of a desirable increase in the emphasis on academics, it may not be entirely beneficial for all students with disabilities. Research has shown that vocational course taking, particularly a concentration of courses in a specific occupational area, increases the likelihood of high school completion (Wagner, 1991) and benefits the postschool employment and earnings of students with disabilities (Wagner, Blackorby, Cameto, & Newman, 1993). NLTS2 findings show that achieving competitive employment is a stated transition goal of the majority of students with disabilities.

Nonacademic courses, such as fine arts or physical education, also are on the course schedules of most students with disabilities, constituting about two courses of a typical seven-course schedule. However, courses such as study skills or life skills are taken by only about one-third of students, increasingly in special education classes.

Corresponding to the progress shown by students with disabilities in taking challenging academic courses, there has been a significant increase in students participating in general education classes—the typical setting for many academic courses. Almost 9 of 10 secondary school students with disabilities participate in at least one general education class, including 70% who take one or more academic courses there, a rate that has increased over time. In fact, 27% of students with disabilities now take all their courses in general education classes. The prominent role of general education classes in the course load of students with disabilities underscores the reality that general and special education have developed a shared responsibility for their success.

However, taking challenging academic courses and participating in general education classrooms characterize the secondary school experiences of some students with disabilities much more than others. Academic and general education course taking is the norm for the large majority of students with speech, visual, hearing, orthopedic, or other health impairments. These students are correspondingly less likely to take vocational education or skills-oriented nonacademic courses than other groups. They contrast markedly with students with mental retardation, autism, multiple disabilities, or deaf-blindness, who spend much more of their time in special education settings and take a larger proportion of vocational education and other nonacademic courses, including life skills or study skills.

Participation in academic and general education courses is not equal among students from households with different income levels or among those of different racial/ethnic backgrounds. General education courses are a larger proportion of the courses taken by white students and those from more affluent households. Conversely, special education courses are more prevalent in the course schedules of lower-income youth and students from diverse racial/ethnic backgrounds.

This chapter has shown that students with disabilities differ in the extent to which their overall school programs include courses in general, special, and vocational education settings. NLTS2 analyses now move from this overview of students' school programs to a focus on the classroom experiences of students with disabilities in each of those settings.