2011 NACME Data Book

Deck 2

Pre-College Educational Challenges
Overview/Purpose

• The slides in this deck provide data on the educational preparation of students prior to college. Slides show the different types of curricula, the extent to which students complete key courses in mathematics and science in high school, ACT and SAT scores, and students’ educational aspirations.

• Many slides have two versions: one with and one without data labels. The graphics are “cleaner” without the labels, yet there are some audiences for which such labeling might be important.

• As with other decks, the set is not necessarily meant to be a self-contained, sequential presentation but, rather, a deck from which users may select slides for any number of presentations. The repetition, therefore, provides users with many choices to present data.

• Attribution: please indicate that the source of these slides is the National Action Council for Minorities in Engineering, Inc. (NACME), Department of Research, Evaluation, and Policy. The NACME web address is: www.nacme.org, where the slides can be accessed and downloaded. Updated slides and additional decks covering new themes will be made available on an ongoing basis.

• Terminology notes: URM = underrepresented minority, which includes African Americans, American Indians and Alaska Natives, and Latinos. When the term “American Indian” is used, it references “American Indians and Alaska Natives,” consistent with U.S. Census Bureau definitions. Asian/Pac. Isl. = Asian and Pacific Islanders are people of these descents who are U.S. citizens and permanent residents and do not include people of Asian origin who are in the United States predominantly for educational purposes. “Foreign” is used to refer to “temporary residents.” Latinos can be any race: the category in most data sources includes people of all racial backgrounds who indicated that they were “Hispanic.” “Non-Latino White” refers to people who did not indicate a Latino background and did indicate “White” as a racial category.
NAEP Mathematics Scores Have Improved Since 1973; African Americans’ and Latinos’ Scores Continue to Lag Non-Latino Whites’ in All Age Groups

Average Mathematics, National Assessment of Educational Progress (NAEP)

NAEP Mathematics Scores Have Improved Since 1973; African Americans’ and Latinos’ Scores Continue to Lag Non-Latino Whites’ in All Age Groups

![Graph showing average mathematics scores by race and age group from 1973, 1990, and 2008.](image-url)

What do NAEP Mathematics Scores Mean?

• **150**: Basic addition and subtraction facts
• **200**: Considerable understanding of two-digit numbers and basic multiplication and division facts
• **250**: Initial understanding of the four basic operations and developing ability to analyze simple logical relations
• **300**: Reasoning and problem solving involving fractions, decimals, percents, elementary geometry, and simple algebra
• **350**: Reasoning and problem solving using geometry, algebra and beginning probability and statistics

High School Completion Has Improved for All Groups Since 1972, but 20 Percent of Latino Males Still Leave High School Without a Diploma

![Bar chart showing high school non-completion rates by sex and race/ethnicity.](chart)

Source: Analysis of data from National Center for Education Statistics, 2011.
*Digest of Education, 2010.*
High School Completion Has Improved for All Groups Since 1972, but 20 Percent of Latino Males Still Leave High School Without a Diploma

The U.S. Department of Education has defined three types of curricula: midlevel and rigorous are meant to prepare students for college-level study.

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<th>TABLE 1. Course credit requirements to attain specified curriculum levels</th>
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<td><strong>English</strong></td>
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Students Were More Likely to Complete a Rigorous Curriculum in High School in 2009, but Only 8 Percent of Latinos and 6 Percent of African Americans Have Done So

Note: "Rigorous curriculum" includes at least: 4 years of English, 3 years of social studies, 4 years of mathematics (including pre-calculus or higher), 3 years of science (including biology, chemistry, and physics), and 3 years of foreign language.

Students Were More Likely to Complete a Rigorous Curriculum in High School in 2009, but Only 8 Percent of Latinos and 6 Percent of African Americans Have Done So

Percent of High School Seniors Completing a "Rigorous" Curriculum

- African Americans
- Latinos
- Asian/Pacific Islanders
- Non-Latino White

Note: "Rigorous curriculum" includes at least: 4 years of English, 3 years of social studies, 4 years of mathematics (including pre-calculus or higher), 3 years of science (including biology, chemistry, and physics), and 3 years of foreign language.

NOTE

• The following slide shows the percentage of high school graduates in 1990, 2000, 2005, and 2009 who took:
  – Chemistry
  – Physics
  – Pre-calculus/analysis
  – Calculus
  – Engineering

• Relevant data by race/ethnicity were not available in the NCES publication: a special data run has been requested, as the most recent data otherwise available are for 2005

• Data by sex are available and will be included
U.S. High School Students Are Earning More Credits in Key Mathematics and Sciences Classes; 3 Percent of the 2009 Graduates Took at Least One Engineering Class

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Percent of High School Graduates Earning Credits in Selected Courses

Underrepresented Minorities’ SAT Scores Continue to Lag Those of Non-Latino Whites’ and Asian/Pacific Islanders

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SAT Scores, 2010 CollegeBound Seniors

Of the SAT Test Takers Graduating in 2010, 8 Percent Reported They Intended to Major in Engineering

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**Intended Major of SAT Test-Takers, 2010 Seniors**

- Health professions and support: 18%
- Business and related: 12%
- Engineering: 8%
- Visual and performing arts: 8%
- Undecided: 7%
- Education: 6%
- Biological and biomedical sciences: 6%
- Psychology: 5%
- Communications, journalism, and related: 3%
- Legal professions and studies: 3%
- All other: 24%

Underrepresented Minorities’ ACT Scores Continue to Lag those of Non-Latino Whites’ and Asian/Pacific Islanders

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Those With Higher Educational Aspirations Had Higher Average ACT Composite Scores; Ethnic Gaps Are Wider for Those With Higher Educational Aspirations

ACT Composite Scores by Selected Educational Aspirations, 2010
Graduating Seniors

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ACT Composite Scores by Selected Educational Aspirations, 2010 Graduating Seniors

On Average, Among ACT Test Takers in The 2010 Graduating Class, Underrepresented Minorities Were Far From Ready for College-Level Coursework

College Readiness - ACT Test-Takers, 2010 Graduating Class

- Mathematics
- Science
- English
- Reading

Note: Readiness benchmarks are: 22, Mathematics; 24, Science; 18, English; and 21, Reading. Correspond 75 percent or higher chance of earning a C in an equivalent college course.

On Average, Among ACT Test Takers in The 2010 Graduating Class, Underrepresented Minorities Were Far From Ready for College-Level Coursework

Note: Readiness benchmarks are: 22, Mathematics; 24, Science; 18, English; and 21 Reading. Corresponds to a 75 percent or higher chance of earning a C in an equivalent college course.