Curriculum for College and Career Readiness

“Curriculum for Success”

Defining a High School Course of Study

June 28, 2006  UMASS Shrewsbury
Purpose of Meeting:

• Examine several high school course of study options and current admission requirements to state four-year colleges and UMASS

  1. Michigan Merit Core
  2. Indiana Core 40
  3. High Schools That Work Recommended Curriculum
  4. State Scholars Initiative HS Course of Study
  5. Massachusetts Board of Higher Education Admissions Requirements

• Review preliminary findings/recommendations from four regional math and English Language Arts standards alignment meetings with college Math and English faculty/administrators

• Use course of study options and findings from alignment study as a basis for discussion for identifying a Massachusetts Curriculum that prepares students for college and work readiness
On April 20, 2006, Michigan Governor Jennifer M. Granholm signed into law a rigorous new set of statewide graduation requirements.

The new graduation standards will be required starting with the Class of 2011, next year's eighth graders.

The Merit Curriculum requires 16 credits for graduation.

Many school districts have already adopted the Michigan Merit Core Curriculum as their “new” graduation requirement.
**Michigan Merit Curriculum**

**Mathematics:** four credits including Algebra I; Geometry, Algebra II; including one credit is required in senior year

**English Language Arts:** four credits

**Science:** three credits including Biology; Physics or Chemistry; one additional science credit

**History/Social Science:** three credits including U.S. History and Geography; World History and Geography and one-half credit in Civics; one-half credit in Economics;

**Physical Education:** One credit

**Visual, Performing, or Applied Arts:** One credit

*Online Learning Experience:* One credit

**Additional Clarifications:**

Students may take an on-line course or learning experience or have the on-line learning experience incorporated into each of the required credits of the Michigan Merit Curriculum. Beginning with the Class of 2016 (Third graders in Fall 2006), students will need to complete two credits of a world language in grades 9-12; OR have an equivalent learning experience in grades K-12.

Source: [http://www.michigan.gov/mde/0,1607,7-140-38924---,00.html](http://www.michigan.gov/mde/0,1607,7-140-38924---,00.html)
The Indiana CORE 40 went into effect beginning high school in the fall of 1994. \textbf{Students} must meet the CORE 40 standard to be considered for admission to an Indiana four-year college or university.

Core 40 becomes Indiana's \textbf{required} high school curriculum in the fall of 2007. To graduate with less than Core 40, a student must complete a formal opt-out process involving parental consent.
Indiana Core 40

English/Language Arts: Eight credits including Literature, Composition, and Speech

Mathematics: Six credits including Algebra I, Geometry, and Algebra II
 or complete Integrated Math series I, II, and III for six credits.)
 All students must take a math or physics course during their junior or senior year

Science: Six credits including Biology, Chemistry, or Physics, or Integrated Chemistry/Physics and any Core 40 science course

History/Social Science: Six credits including two credits: U.S. History one credit: U.S. Government, one credit Economics, two credits World History/Civilization or Geography/History of the World

Directed Electives: Five credits World Languages, Fine Arts, Career/Technical

Physical Education: two credits Health and Wellness: two credits

Electives*: six credits
(Career Academic Sequence Recommended)**

Note: Indiana 1 credit is the equivalent of a half-year or semester course
Source: http://www.indianacore40scholars.org/
Indiana Core 40

Changes in Postsecondary Enrollment Since Implementation of Core 40

<table>
<thead>
<tr>
<th>Year</th>
<th>Indiana</th>
<th>Nation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>37.5%</td>
<td>43%</td>
</tr>
<tr>
<td>1992</td>
<td>50%</td>
<td>53.6%</td>
</tr>
<tr>
<td>1996</td>
<td>57.9%</td>
<td>58.5%</td>
</tr>
<tr>
<td>2000</td>
<td>60%</td>
<td>56.7%</td>
</tr>
<tr>
<td>2002</td>
<td>62%</td>
<td>57%</td>
</tr>
</tbody>
</table>

High School Graduates Enrolling in Postsecondary Education

- 1986: 37.5% (40th in nation)
- 1992: 50% (10th in nation)
- 1996: 57.9%
- 2000: 60%
- 2002: 62%
High Schools That Work (HSTW) is an initiative of the Southern Regional Education Board (SREB) begun in 1986 to raise achievement of career and technical students.

The mission of HSTW is to improve the academic and technical achievement of career bound students by implementing 10 key practices that looks at what is taught, how its taught, what is expected of students, and how teachers work with each other, with parents and with the community.

Massachusetts currently has 28 High Schools That Work sites.

Source: [http://www.doe.mass.edu/cte/hstw/](http://www.doe.mass.edu/cte/hstw/)
Southern Regional Education Board

High Schools That Work

**English/Language Arts:** Four credits in English courses of college-preparatory English

**Mathematics:** Four credits in mathematics courses of college-preparatory Algebra I, Geometry and Algebra II

**Science:** Three science courses, including two credits in courses of college-preparatory Biology, Chemistry, Physics or Applied Physics

**History/Social Science:** Three college-preparatory social studies courses

**Directed Electives:** Four courses in an academic or a career/technical major

**Technology:** Technology course covering word processing, database, spreadsheets, presentation software, and use of Internet and e-mail

Source: http://www.sreb.org/programs/hstw/hstwindex.asp
High Schools That Work
Recommendations

English: Students should read the equivalent of eight books annually, write short papers weekly and write one or more research papers annually.

Mathematics: Students completing Algebra I in grade eight will be required to complete four additional years of mathematics. Students take mathematics their senior year.

Science: Students conduct lab experiments and investigative studies; read, critique and discuss three to five books or equivalent articles about scientists, scientific discoveries and how science is used in the real world; keep lab notebooks; make presentations; and complete research projects and written reports. Students design and conduct group or individual projects.

History/Social Science: Learning emphasizes reading and writing to learn. Students will read five to eight books or equivalent articles, write weekly, make presentations, complete research projects, and prepare at least one major research paper in each course.

Academic or Career Technical Major: Students take at least four credits in a concentration. Each student will have a choice from among at least four career/technical concentrations at school sites, work sites, career/technical centers, postsecondary institutions; and a choice of two academic concentrations, such as mathematics/science and humanities. Each academic concentration will include one or two Advanced Placement (AP), International Baccalaureate (IB) or dual-credit courses.
The State Scholars Initiative (SSI) is a national program in 22 states that mobilizes business leaders to help motivate students to complete a rigorous course of study in high school, one that will prepare them for success in college and their careers. In Massachusetts, this initiative is coordinated by the Massachusetts Business Alliance for Education (MBAE) in partnership with the Massachusetts Secondary School Administrators Association (MSSAA) and the DOE.

Massachusetts received a $300,000 grant to implement SSI. Participating pilot high schools in this newly-funded initiative are:

- Assabet Valley Vocational School
- Burlington High School
- Chicopee Comprehensive High School and Chicopee High School
- Worcester North High School
State Scholars Initiative

Based upon National Commission on Excellence in Education Recommendations – Nation at Risk Report

English: Four courses/years

Mathematics: Three courses/years including Algebra I & II and Geometry

History/Social Science: Three and one-half courses/years including 1 year of U.S. History, 1 year of World History, one year of World Geography and either ½ year of Economics or ½ year of Government

Science: Three course/years including Biology, Chemistry, and Physics

Foreign Language: Two courses/years of a language other than English

Source: http://www.wiche.edu/statescholars/about/core.asp
The admissions standards for the state colleges and the University of Massachusetts emphasize that students take a rigorous academic high school curriculum so that students enter college ready to learn. These standards represent minimum requirements; meeting them does not guarantee admission, since campus officials consider a wide range of factors in admissions decisions.

*It is important to note that admissions standards for the state’s community colleges differ. Community colleges may admit any high school graduate or GED recipient.*

Massachusetts Board of Higher Education

Admissions Standards for UMASS and four-year State Colleges

**English:** Four years

**Mathematics:** Three years (Algebra I & II and Geometry or Trigonometry, or comparable coursework)*

**History/Social Science:** Two years (including one course in U.S. History)

**Science:** Three years (including 2 courses with laboratory work)

**Foreign Language:** Two years (in a single language)

**Electives:** Two years (from the above subjects or from the Arts & Humanities or Computer Sciences)

*BHE is currently considering adding a fourth year of mathematics to its admissions requirements.*

<table>
<thead>
<tr>
<th>COURSE</th>
<th>Board of Higher Education</th>
<th>State Scholars Initiative</th>
<th>Michigan Merit Core</th>
<th>High Schools That Work</th>
<th>Indiana Core 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
<td>4 courses/years</td>
<td>4 courses/years</td>
<td>3 courses/years</td>
</tr>
<tr>
<td>English Language Arts</td>
<td>4 courses/years</td>
<td>4 courses/years</td>
<td>4 courses/years</td>
<td>4 courses/years</td>
<td>4 courses/years</td>
</tr>
<tr>
<td>History/Social Science</td>
<td>2 courses/years</td>
<td>3.5 courses/years</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
</tr>
<tr>
<td>Science</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
<td>3 courses/years</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>2 courses/years</td>
<td>2 courses/years</td>
<td>(2 course/years beginning with class of 2016)</td>
<td>None</td>
<td>2.5 courses/years of world language, fine arts or career technical</td>
</tr>
<tr>
<td>Other</td>
<td>2 years from above subjects or from arts/humanities or computer sciences</td>
<td>1 year physical education, 1 year visual, performing or applied arts, on-line learning experience</td>
<td>1 technology course, 4 years in “major or technical field”</td>
<td>1 year physical education, .5 health, 3 “course” electives</td>
<td></td>
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</table>
Math and Science Courses Required for Graduation

Percentage of Local, Regional, and Vocational High Schools Requiring Math and Science to Graduate

<table>
<thead>
<tr>
<th>Years</th>
<th>Math</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 yrs</td>
<td>15.4%</td>
<td>27.0%</td>
</tr>
<tr>
<td>3 yrs</td>
<td>62.9%</td>
<td>59.1%</td>
</tr>
<tr>
<td>4 yrs</td>
<td>13.1%</td>
<td>13.9%</td>
</tr>
</tbody>
</table>
## Summary of Requirements

<table>
<thead>
<tr>
<th>COURSE</th>
<th>Dover/ Sherborn High School</th>
<th>Burlington High School</th>
<th>Assabet Regional Vocational High School</th>
<th>Pathfinder</th>
<th>Lowell High School (for Class of 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>4 years</td>
<td>4 years</td>
<td>4 years</td>
<td>4 years</td>
<td>2 years (Algebra and Geometry)</td>
</tr>
<tr>
<td>English Language Arts</td>
<td>4 years</td>
<td>4 years</td>
<td>4 years</td>
<td>4 years</td>
<td>4 years</td>
</tr>
<tr>
<td>History/Social Science</td>
<td>3 years</td>
<td>3 years</td>
<td>4 years</td>
<td>3 years</td>
<td>2 years</td>
</tr>
<tr>
<td>Science</td>
<td>3 years</td>
<td>3 years</td>
<td>3 years</td>
<td>3 years</td>
<td>2 years</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>3 years</td>
<td>2 years</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Other</td>
<td>40 hours of community service/learning, equivalent of 2 years in living, fine and technical arts and one year of educational technology</td>
<td>1 year computer technology</td>
<td>Senior Project</td>
<td>For the class of 2007, one year of science and taking at least Algebra and Geometry not delineated</td>
<td></td>
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</tbody>
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Alignment Initiative

• Massachusetts is partnering with Achieve in the American Diploma Project (ADP)
• One of the goals of ADP is to determine if state standards are aligned with expectations for college and a career.
• Over the past four months conducted four regional focus groups with 30+ college math and English faculty (2-yr, 4-yr, public and private).
• Determine appropriateness of standards in preparing students to succeed in college 101 English and math classes.
• Examine trends in student preparation.
Bottom Line Math Findings

• Massachusetts standards for grades 9-12 are fine. “If kids knew the math standards they would exceed (college) entry level expectations and be ready for calculus.”

• The problem is that many students do not have a deep understanding of some standards and have not mastered basic skills – arithmetic, number sense, algebra and fractions.
Math Recommendations

• Reduce reliance on calculators in lower grades so that students can understand and master key problem solving skills.

• Help students know where they stand prior to their senior year by:
  - Increased administration of Accuplacer in HS.
  - Development and administration of a voluntary Algebra II assessment to help determine college readiness.

• Consider development of a senior year transition math course designed to address math deficiencies.

• Require a 4th year of college prep math in HS.
Bottom Line English Language Arts Findings

• Standards are excellent and sufficient for college readiness, but don’t appear to be used in grades 11&12.

• Reading – high school focuses on elements of narrative genre, while higher education focuses on short essays on a topic from a variety of sources.

• Writing – high school focus upon five-paragraph essay, while higher education is focused upon persuasive/argumentative writing from multiple sources for identified audiences and purposes.
English Language Arts
Recommendations

• Increase emphasis in high school on persuasive/argumentative writing.
• Increase number of writing assignments across the high school curriculum.
• Make available examples of high school and college syllabi, course assignments, and student work course.
• Convene regional teams of HS and College English and math teachers for curricula alignment.
Curriculum for Success

• What courses should comprise a state Curriculum for Success?
  What **Key Assumption** does the committee have consider in identifying a state curriculum??

• Should the Curriculum for Success be an expectation for for nearly all students???
<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Credits/Courses</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language Arts</td>
<td></td>
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<tr>
<td>Mathematics</td>
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