

## End-of-Course Assessment Plan College-Readiness and Advanced-Course Readiness

### Background

On September 10, 2008, Commissioner Robert Scott of the Texas Education Agency (TEA) and Commissioner Raymund Paredes of the Texas Higher Education Coordinating Board (THECB) convened a panel of nationally recognized college-readiness experts to review critical issues associated with assessing and promoting college readiness within the End-of-Course (EOC) program.

Based on the results of this meeting and additional review by college-readiness experts, an initial plan was developed jointly by TEA and THECB staff to provide a framework for the implementation of the college-readiness and the advanced-course readiness components within the EOC assessment program. This initial plan was approved by both agencies and published on the TEA website on March 3, 2009.

Since the approval of the initial EOC college-readiness and advanced-course readiness plan, the following activities have taken place.

- College and Career Readiness Standards (CCRS) have been fully incorporated into the revised Texas Essential Knowledge and Skills (TEKS) for English language arts, mathematics, science, and social studies.
- TEA and THECB staff, high school and higher education faculty, and national experts with experience in defining college and career readiness have worked together to identify the TEKS in Algebra II and English III that are critical for college and career readiness and align to the CCRS. The teams also developed performance expectations for each of the critical TEKS identified. The critical college- and career-readiness skills within the TEKS were validated by external committees of educators and will be used for assessment, teacher preparation, professional development, and instructional materials.

In addition, House Bill 3, enacted by the 81<sup>st</sup> Texas Legislature in June 2009, provided clarification and specific requirements for setting college-readiness performance standards on assessments. The clarification and requirements included

- the elimination of the requirement for a separate section containing college-readiness questions, §39.0233(d);
- a definition of college readiness, §39.024(a);
- the identification of the EOC assessments on which college-readiness performance standards are required, §39.024(b);
- research studies to be conducted jointly by TEA and THECB in order to substantiate the correlation between performance on the EOC assessments and college readiness, which include an evaluation of the need for remediation to facilitate college readiness, §39.024(c)(d), §39.0242(c)(d);
- research studies conducted jointly by TEA and THECB to evaluate the correlation between performance on science and social studies EOC assessments and college readiness, §39.024(f);
- periodic review of the college-readiness performance standards on the EOC assessments to be conducted jointly by TEA and THECB, and revision of the performance standard, if appropriate, §39.024(g)(h), §39.0242(d);
- the legal authority for establishing the college-readiness performance standards, §39.024(e), §39.0241(a)(a-1);

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- the requirement that a student must achieve a score that meets or exceeds the score that indicates college readiness on the designated EOC assessments to graduate under the advanced high school program, §39.025(a-3);
- the legal authority providing students who fail to achieve the score that indicates college readiness on the designated EOC assessments to retake the assessment instrument; and
- the legal authority exempting students who achieve the score that indicates college readiness on the designated EOC assessments from requirements of the Texas Success Initiative for a period determined by the Commissioner of Higher Education.

The plan that follows is an update of the initial implementation plan, adjusted for the activities that have since taken place as well as for the clarifications and new requirements in House Bill 3. It addresses the measurement of college readiness, identification of advanced-course readiness, placement of college freshman using the college-readiness measure, and the item- and test-development processes related to the measurement of college-readiness.

### **Measurement of College Readiness**

#### Definition of College Readiness

House Bill 3, §39.024(a) defines college readiness as the level of preparation a student must attain in English language arts and mathematics courses to enroll and succeed, without remediation, in an entry-level general education course for credit in that same content area for a baccalaureate degree or associate degree program.

#### Assessments to Be Used to Measure College Readiness

House Bill 3, §39.024(b) mandates that college-readiness performance standards be set on the Algebra II and English III EOC assessments. TEC §39.024(c)(d) and §39.0242(c)(d) also mandate both the collection of data and research studies to substantiate the correlation between performance on these EOC assessments and college readiness as well as the development of remediation courses to facilitate college readiness. This legislation is consistent with existing literature that supports the ability to assess college readiness in reading, writing, and mathematics. The content areas of English language arts and mathematics have been studied the most frequently; thus, their relationship to student success is understood better than that of other potential predictors.<sup>1</sup> Although not the only indicators of college success, performance in English language arts and mathematics is considered to be a reliable predictor of college readiness. Research also shows that assessments taken in closer proximity to matriculation to college have better predictive value than assessments taken in earlier years.<sup>2</sup>

Consistent with research that indicates that writing may be the single most important skill for college success across disciplines, writing will receive greater emphasis on the English III assessment as part of the college-readiness measure. The inclusion of writing tasks may be investigated in other content areas if further research indicates that this would be appropriate. However, consideration will need to be given to the practicality of adding writing tasks to other assessments due to the potential impact to scoring and reporting timelines and the additional cost associated with the scoring of performance tasks. There are currently no plans to include writing tasks in any EOC assessments other than English I, II, and III.

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<sup>1</sup> Conley, David T., *Texas End-of-Course Exam Panel Questions*, p. 1.

<sup>2</sup> Camara, Wayne, *Texas EOC Responses to Questions*, p. 4.

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As required by current legislation, the Algebra II and English III EOC assessments will include measures of college readiness. In addition, House Bill 3, §39.024(f) mandates that TEA, in collaboration with the THECB, conduct research studies for the appropriate science and social studies EOC assessments to evaluate the correlation between performance on the EOC assessments and college readiness. If the Commissioner of Education, in collaboration with the Commissioner of Higher Education, determines that the research studies substantiate an empirical relationship between a certain level of performance by students on specific science and social studies EOC assessments and college readiness, then the commissioners may establish college-readiness performance standards for the science and social studies EOC assessments as soon as is practicable. The research studies examining the extension of the concept of college readiness to science and/or social studies EOC assessments will be completed by December 1, 2012, when a report is due to the legislature.

### Items that Address College Readiness

Now that the CCRS have been incorporated into the TEKS curriculum, Algebra II and English III EOC assessments will include items that address college and career readiness as defined within the TEKS framework. The items that contribute toward a measure of college readiness on the Algebra II and English III EOC assessments will address the critical college- and career-readiness skills within the TEKS. Additionally, previous legislation required the college-readiness questions be placed in a separate section of the EOC assessments. House Bill 3, §39.0233(d) eliminated the mandate for a separate college-readiness section, thereby allowing the college-readiness questions to be integrated into the Algebra II and English III assessments.

### Establishing College-Readiness Performance Standards

The performance standards associated with the college-readiness measure will be determined through a multistep process that involves several committees consisting of Texas educators (secondary and higher education), administrators, and stakeholders from throughout the state as well as the review of data that empirically links student performance on the EOC assessments and college readiness. Although TEA assumes responsibility for the work of the committees, THECB staff provides input on membership and agendas.

Standard-setting panels composed of Texas educators and policy groups will then meet to review college-readiness questions, results from the various empirical research studies, student-performance statistics, and data showing how the state's students performed relative to the new performance standards. Based on this review, the standard-setting panel will recommend college-readiness performance standards for the Algebra II and English III EOC assessments. Through the inclusion of advice from content experts and the results of the empirical studies into the process, the recommended performance standards will be supported by validity evidence. The current plan is for the process to begin and the panels to convene in fall 2011.

In addition to the standard-setting panel, a policy-review committee will convene to look at the recommendations made by the standard-setting panels and determine the reasonableness of the performance standards across all EOC assessments, including college readiness in Algebra II and English III. The committee will also consider possible phase-in plans and other external criteria. Final recommendations of all college-readiness performance standards on each EOC assessment will be provided to the Commissioner of Education and Commissioner of Higher Education. A potential phase-in plan for

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implementing the college-readiness standards also would be provided by this committee to the commissioners.

Based on the recommendations of the committees in the standard-setting process and as specified in House Bill 3, §39.024(e) and §39.0241(a)(a-1), the Commissioner of Education and the Commissioner of Higher Education shall establish the college-readiness performance standards for the Algebra II and English III EOC assessments.

House Bill 3, §39.024(h) and §39.0242(d), requires that the college-readiness performance standards be periodically reviewed by TEA and THECB after they are initially established. Additional empirical studies will be collected after the initial standard-setting meetings. One study that will be conducted for the standards review that is not possible for the initial standard-setting meetings involves following a cohort of students from high school to college to establish a direct link between student performance on EOC assessments and college performance. Results from these additional studies will be used to evaluate the reasonableness of the college-readiness standards during the standards-review process.

### Empirical Studies to Inform College-Readiness Standard Setting

House Bill 3, §39.024(c), mandates that empirical studies be conducted to substantiate the correlation between performance on the EOC assessments and college readiness. TEC §39.0242(b) requires the collection of data from research studies whose results may be used to establish performance standards on the EOC assessments that are empirically linked across courses in English and Algebra. TEC §39.024(f) requires research studies to evaluate the feasibility of setting college-readiness performance standards for EOC assessments in the science and social studies content areas. TEC §39.024(g)(h) and §39.0242(d) mandate data collection and empirical research studies to help inform the periodic review of the college-readiness performance standards on EOC assessments.

Plans for conducting several empirical studies to inform the college-readiness standard setting are underway (see attachment A). As mandated in House Bill 3, §39.0242(b), certain studies will be conducted prior to the beginning of the 2011–2012 school year for use in establishing the college-readiness performance standards. Other studies will need to be conducted in time to inform the feasibility of having college-readiness performance standards on the EOC assessment in science and/or social studies and to be used for the periodic review of the college-readiness performance standards on EOC assessments.

### **Identifying Readiness for Advanced High School Courses**

#### Assessments to be Used to Identify Advanced-Course Readiness

Advanced high school courses are those courses usually taken by students in their junior or senior year of high school, such as Algebra II or English III. Student performance in Algebra I and English I and II is typically found to be predictive of success in Algebra II and English III respectively. Consistent with the requirements of House Bill 3, §39.0242(b), before the beginning of the 2011–2012 school year, TEA will substantiate the empirical relationship between satisfactory student performance for each performance standard on the English I, II, and III EOC assessments and the empirical relationship between satisfactory student performance on the Algebra I and Algebra II EOC assessments. Such empirical study results can be used to identify an indicator of advanced-course readiness on the Algebra I, English I, and English II assessments.

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Because the knowledge required to be successful in such sequential courses is cumulative, the indicator of advanced-course readiness may be used to determine whether a student is on track to meet college readiness. For students who do not demonstrate advanced high school course readiness, districts can use the readiness indicator to identify students in need of remediation and provide instructional intervention early in high school to help students strengthen their skills in those academic areas where they may need additional work.

Indicators of advanced-course readiness will be established through linking studies. Using cohorts of students taking EOC assessments (e.g., English I, English II, and English III, and Algebra I and Algebra II), the linking studies will be conducted to evaluate the empirical relationships across EOC assessments. The data collection for these studies has begun and will help inform how these indicators will be determined. For example, approximately 10,000 students who took the Algebra I EOC assessment in 2009 (spring primary administration or fall special study) were identified. TEA will follow these students when they take the Algebra II EOC assessment in 2011. By empirically linking these students' Algebra I and Algebra II scores, Texas will identify an indicator of advanced high school course readiness on the Algebra I EOC assessment.

### Summary

The chart below summarizes those assessments that will include indicators of advanced-course readiness and performance standards for college readiness.

**College-Readiness and Advanced-Course Readiness Overview**

EOC Assessment	TEKS Revised to Incorporate College-Readiness Standards	College-Readiness Performance Measure	Advanced High School Course Readiness Performance Measure
English I	2008	No	<b>Yes</b>
English II	2008	No	<b>Yes</b>
English III	2008	<b>Yes</b>	No
Algebra I	January 2009	No	<b>Yes</b>
Geometry	January 2009	No	No
Algebra II	January 2009	<b>Yes</b>	No
Biology	March 2009	<b>TBD</b>	No
Chemistry	March 2009	<b>TBD</b>	No
Physics	March 2009	<b>TBD</b>	No
U.S. History	May 2010	<b>TBD</b>	No
World Geography	May 2010	No	No
World History	May 2010	No	No

### College and Career Readiness Teaching Strategies

Using teams of public and higher education faculty, TEA and THECB staff coordinated with the Southern Regional Education Board to develop college and career readiness strategies that educators can use as instructional interventions for 12<sup>th</sup> grade students who do not meet the college-readiness performance standards for EOC assessments in English III and Algebra II. Beyond these instructional strategies, institutions of higher education and high schools could offer other student interventions (i.e., summer bridging programs) to provide accelerated instruction in

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reading, writing, and mathematics to ensure college readiness prior to enrollment in entry-level college courses. To date, state funding has not been appropriated by the Texas legislature to develop TEKS for 12<sup>th</sup> grade courses that would differ from the TEKS adopted by the SBOE for English III and Algebra II, or for assessments that would differ from the English III and Algebra II EOC assessments currently under development,

### **Placement in Freshman College Courses**

In House Bill 3, §39.024(e) and §39.0241(a)(a-1) authorize both the Commissioner of Education and Commissioner of Higher Education to set college-readiness performance standards.

TEC §39.0232 states that to the extent practicable EOC assessments should be developed so that they may be used to determine the appropriate placement of a student in a course of the same subject matter at an institution of higher education. Reference courses are being developed as part of the THECB's college readiness plan. Alignment studies will be conducted that will establish the relationship between the assessed content and the curriculum of corresponding entry-level college courses.

In House Bill 3, §51.3062(i-1) allows the Commissioner of Higher Education to adopt rules requiring institutions of higher education to adopt uniform standards for placement of students into developmental education or entry-level college courses. In addition, (g-1) of that section provides an exemption for students who meet the college readiness performance standards on the Algebra II and English III EOC assessments for a period determined by the Commissioner of Higher Education.

### **Item and Test Development Process**

The development of new assessments under the State of Texas Assessments of Academic Readiness (STAAR) program mirrors a national trend in which fewer skills are being assessed in a more focused and deeper way. The new assessments are being developed so that student progress can be measured from grade to grade and course to course as well as toward advanced-course and college readiness. This is reflected in both item development and test-development approaches. For each 3–8 and EOC assessment, there is a focus on identifying what student expectations are essential for student success, both in the course itself and at the next level, whether that next level represents the subsequent course in a content sequence or college and career readiness. As part of this new focus, TEA has engaged advisory groups of secondary and post-secondary educators to make recommendations about what the focus of each assessment should be and how that focus could be reflected in item development and the test blueprint. To date, advisory meetings have been held for most of the English language arts, mathematics, and science assessments. Advisory meetings will be held for social studies now that the revised TEKS have been adopted.

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### Item Development

The following item characteristics have been incorporated in the development of college-readiness and advanced-course readiness items:

- a. items that gauge depth of understanding of key concepts for college readiness<sup>3</sup>
- b. items that assess a complexity of cognitive processing (depth of knowledge) and focus on key cognitive strategies that a student should master to be ready for advanced high school or college courses. These forms of strategic thinking include problem solving, interpretation, reasoning, precision, and accuracy.<sup>4</sup> Items may require students to solve a broad array of problems, draw complex inferences, analyze and evaluate information, think critically, interpret results, support logical arguments with evidence, support a position based on evidence in specific material the student has read, and write clearly and effectively.

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<sup>3</sup> Conley, David T., *Texas End-of-Course Exam Panel Questions*, p. 5.

<sup>4</sup> Conley, D. (2007). *The College-Readiness Performance Assessment System (CPAS)*. Eugene, Oregon: Educational Policy Improvement Center.

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### The Test-Development Process

Throughout the test-development process, external review committees composed of Texas educators and representatives from higher education will determine alignment of the college-readiness and advanced-course readiness items to the TEKS. Committee members will reflect the diversity of the state, will be experienced educators, and will have a working knowledge and understanding of the TEKS and be familiar with the Texas college and career readiness standards.

College-readiness items will be dual-purpose, contributing to both the base test score and the college-readiness score. A more focused assessment will be achieved by structuring the test blueprints to emphasize the most essential student expectations within the curriculum.

The following chart provides a timeline of the test development activities that will take place for the college-readiness component of the EOC program.

Activity	Algebra II	English III
1. <b>Adoption of revised TEKS by the SBOE with the inclusion of college-readiness standards</b>	January 2009	May 2008
2. <b>Focus Group</b> —a committee of secondary and higher education representatives discuss critical aspects of the college-readiness component	Spring 2009	Summer 2009
3. <b>Advisory Committee</b> —a committee of secondary and higher education representatives review item development guidelines, test blueprint, assessed curriculum, and a set of prototype items for college-readiness questions	Spring 2009 and Spring 2010	Spring 2010
4. <b>*Item Development</b> —college-readiness items aligned to the TEKS developed by professional items writers	Fall 2008–Fall 2009	Spring 2010–Fall 2010
5. <b>*Expert Review</b> —higher education representatives review all college-readiness items for content accuracy	Spring 2009	Fall 2010
6. <b>*Internal Review</b> —TEA curriculum and assessment specialists review and revise all proposed college-readiness items	Summer 2009	Fall 2010
7. <b>*Educator Review</b> —secondary and higher education educators review all college-readiness items to determine their appropriateness for an EOC assessment	Fall 2009	Fall 2010
8. <b>*Field Testing</b> —all college-readiness items field-tested with a representative sample of Texas students	Spring 2010	Spring 2011
9. <b>*Data Analysis</b> —all college-readiness field-test data reviewed by psychometricians	Summer 2010	Summer 2011
10. <b>*Data Review</b> —secondary and higher education educators review all college-readiness field-tested items	Summer 2010	Summer 2011
11. <b>*Test Construction</b> —the operational tests, including embedded college-readiness items, constructed	Fall 2010	Summer 2011
12. <b>*Content Validation</b> —a panel of university-level experts in the respective subject area reviews tests, including college-readiness items, for accuracy because of the advanced level of content being assessed	Fall 2010	Fall 2011
13. <b>*Operational Administration</b> —the live administration of the assessment includes college-readiness items	Spring 2011	Spring 2012

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Activity	Algebra II	English III
<b>14. Standard Setting</b> —standard-setting panels and policy-review committees review student-performance statistics, impact data, and results from the various empirical research studies to recommend performance standards for college-readiness questions	Fall 2011	Fall 2011
<b>15. Follow-up Study</b> —a research team designs and implements studies to evaluate the reliability and validity of the college-readiness cuts previously established	2012–2015	2013–2015

\* These test-development activities are repeated annually.

### The Mechanism for Selecting Higher Education Faculty to Participate in the Test Development Process and in Standard Setting

Criteria for selecting higher education faculty for participation in the EOC test development process will be similar to the criteria used for selecting participants for the current test development process. Participants will have content expertise and teaching experience in entry-level courses in the subject area for which the test is being developed, will be exemplary educators nominated by their peers or supervisors, and will have a working knowledge and understanding of the TEKS and be familiar with the Texas college and career readiness standards. Committees will be assembled that reflect the state's diversity.

The THECB will nominate and select its representatives for participation in the EOC test development process. The commissioner of higher education will approve the nomination process, which will include criteria such as prior work with the Texas college and career readiness standards and a working knowledge and understanding of the TEKS.

TEA and THECB will collaborate on assignments to a committee or particular activity based on overall committee composition.

### **Summary and Next Steps**

In summary, TEA and the THECB have made progress implementing legislation related to college readiness. The work to date as well as the implementation plans underway will produce measures of college readiness in English III and Algebra II when these assessments are used for graduation assessment requirements starting in the 2011–2012 school year. The TEA and THECB collaborations are also on track to produce advanced-course readiness indicators in Algebra I, English I, and English II. Furthermore, if the research studies indicate the feasibility for measuring college readiness in science and social studies, TEA and THECB will collaborate to produce measures of college readiness in EOC assessments for those content areas.

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### **ATTACHMENT A**

#### **Empirical Studies to Inform College-Readiness Standard Setting**

As mandated in House Bill 3, §39.0242(b), certain studies (e.g., studies a, b, d, and e below) will be conducted prior to the beginning of the 2011–2012 school year for use in establishing the college-readiness performance standards. Other studies will need to be conducted in time to inform the feasibility of having college-readiness performance standards on the EOC assessment in science and/or social studies (e.g., study c below) and to be used for the periodic review of the college-readiness performance standards on EOC assessments (e.g., studies a, b, d, e, f, and g below). Results of these studies will be used to inform standard-setting decisions by the Commissioner of Education and the Commissioner of Higher Education.

These studies include content analysis, data collection, and the incorporation of feedback regarding research design and methodology from the Texas Technical Advisory Committee.

Research study plans include the following:

- a. empirical linking studies that look at the relationship of students' performance across EOC assessments in English and Algebra
- b. validity studies that examine the relationship between performance on the Algebra II and English III assessments and scores on external tests commonly taken by college-bound students, such as SAT, ACT, ACCUPLACER, COMPASS, and THEA (design of these studies has been reviewed by the Texas Technical Advisory Committee);
- c. empirical linking and validity studies that look at the relationship of performance among EOC assessments in science and social studies content areas and between EOC assessments and external tests commonly taken by college-bound students (design of these studies has been reviewed by the Texas Technical Advisory Committee);
- d. validity studies that compare the performance standards on EOC assessments with those established nationally and internationally on comparable assessment instruments, such as NAEP, PISA, and/or TIMSS (design of these studies will be presented to the Texas Technical Advisory Committee in the future);
- e. contrasting-group studies in which EOC assessments are administered to college students. The performance on the EOC assessment will be compared between students who are currently enrolled in credit-bearing and non-credit-bearing college-level courses in the same subject area (design of these studies will be presented to the Texas Technical Advisory Committee in the future); and
- f. longitudinal studies that follow students from high school into college and evaluate the relationship between performance on the EOC assessments and college-level courses in the same subject area (design of these studies will be presented to the Texas Technical Advisory Committee in the future).

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