SOUTH DAKOTA BOARD OF REGENTS

Academic and Student Affairs

AGENDA ITEM: 6 – A
DATE: May 10, 2022

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SUBJECT

Math Placement Guidelines

CONTROLLING STATUTE, RULE, OR POLICY

BOR Policy 2:3 – System Undergraduate Admissions

BACKGROUND / DISCUSSION

Historically, initial math placement of incoming undergraduate students was driven by standardized test scores (most prominently, ACT math subscore). In 2013, SDSU proposed a new approach: Math Index, which integrates two data elements (HS GPA + standardized math test score) into a single measure of math readiness. Following development of a meaningful formula for calculation, SDSU launched its usage through an approved pilot project. In 2016, Math Index was embraced across the system as the key influential factor for initial placement. That format has been perpetuated through the current academic year.

The COVID-19 Pandemic prompted SDSU to research efficacy of using HS GPA (High School Grade Point Average) in isolation as an indicator of collegiate math readiness. Based on extensive investigation and evaluation, Dr. Donna Flint (SDSU) crafted a new math placement matrix in which HS GPA is preferentially utilized. That foundational premise along with the proposed math placement matrix was vetted by the Math Discipline Council (a membership comprised of twelve experienced mathematics professors); ultimately, a vote of the six universities resulted in approval.

A chosen representative of the Math Discipline Council – Dr. Kurt Cogswell of SDSU – presented this proposal to the Academic Affairs Council (AAC). Following discussion and deliberation, AAC approved this new approach to initial math placement.

IMPACT AND RECOMMENDATION

Given the pertinent relationship of math placement to undergraduate admissions (BOR Policy 2:3), this guideline merits approval from the Board of Regents. Consistent with the AAC membership's resolve, BOR senior staff members are supportive of the Math Discipline Council's recommendation.

ATTACHMENTS

Attachment I – AAC Math Placement Guideline 7.6.1
Attachment II – Appendix A – Math Placement Matrix

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DRAFT MOTION 20220510_6-A:

I move to approve the Math Placement Guidelines, as presented.

AAC Guideline: 7.6-1 Mathematics Placement Guidelines
BOR Policy 2:3 System Undergraduate Admissions

1. Introduction:

1.1. **Overview:** The South Dakota Board of Regents espouses a standardized process specific to initial placement of students in math courses. Consistently employed across the regental system, this targeted placement methodology is aligned with proven measures of math readiness.

1.2. **Rationale:** Students are placed in accordance with acknowledged skills and abilities. Such placement promises a match between student preparation/dispositions and course rigor; it positions students for collegiate success in mathematics, which retains vital importance. Moreover, precision in placement assures a fitting level of academic challenge for those who demonstrate higher levels of skill in mathematics.

1.3. **Scope:** All incoming, degree seeking students at the undergraduate level (associate and baccalaureate-degreed programs) are initially placed in math courses as established by approved guidelines.

Distinctions:

1.3.1. Newly degree-seeking students who have already completed mathematics course work at any regental institution bypass placement requirements; such students use completed course work to satisfy prerequisite requirements for future mathematics courses.

1.3.2. A subset of students successfully complete math course work outside of the South Dakota regental system; if an external course is approved as a transfer equivalency for a regental course which also satisfies the general education requirement for math, then the student is exempt from math placement; all other transfer students are placed in accordance with defined procedures.

1.3.3. For non-degree seeking students, placement is relevant only if students pursue registration in math course work. In such cases, placement procedures do apply.

1.4. **Special Circumstances:** Students who require remediation are afforded commensurate levels of supplemental, tailored support; this instructional benefit bolsters solid acquisition of mathematical skills and successful progression through general education requirements.

2. Initial Placement: Refer to matrix featured in Appendix A.

2.1. **Courses below MATH 123 (Calculus I):**

2.1.1. High School GPA (HS GPA): As of fall 2022, HS GPA is used in isolation as a single measure of academic preparation. Its usage - which is preferential - promotes a student-friendly, streamlined method of initial placement.

Notes: HS GPA must be recent (no more than five years old). In context of incoming students who were home schooled, HS GPA is not employed for purposes of placement.

2.1.2. Math Index (MI): This measure of readiness integrates two data elements: HS GPA and ACT Math Subscore. Developed for use by the regental system in 2013, it is calculated as follows: {(HS GPA x 250) + (ACT Math Subscore x 17)}. The MI provides an alternative to HS GPA in isolation.

Notes: SAT Math Subscores are converted to ACT subscores (see concordance table presented in Appendix B). Consistent with HS GPA, standardized test scores must be recent (no more than five years old). ACT/SAT subscores are exclusively used to calculate MI; alternately stated, such standardized test scores are not utilized in isolation to place students.

2.1.3. Smarter Balanced Math Subscore (SB): In the spring of 2015, South Dakota High Schools collectively launched administration of this standardized test; SB test scores may be used to elevate math placement.

2.1.4. College Board Accuplacer Next Generation Math Test: In the event that a student's situation defies meaningful placement (due to absence of a viable HS GPA and/or SB test score), this Accuplacer mathematics test is used to determine placement.

2.2. **MATH 123 (Calculus I):**

2.2.1. College Board Accuplacer SD Calculus Test: Students must demonstrate readiness for calculus through not only HS GPA, but also Accuplacer test scores.

2.2.2. If interested, students whose placement points to the bracket of courses which includes MATH 115 (Pre-Calculus) may sit for the custom-designed South Dakota Calculus test; earning a cut score as indicated on the math placement matrix (Appendix A) enables registration in Calculus I.

2.2.3. As established, certain students (those without valid HS GPA and/or SB test score) must take the Math Accuplacer Test to determine initial placement. If motivated toward immediate placement in Calculus I, such students must first achieve a score of 250 or higher in the Advanced Algebra and Functions (AAF) domain of the math test – then progress to the South Dakota Calculus test and earn a specified cut score.

2.2.4. Each student may sit for the SD Calculus test twice; this includes once for initial placement and once for a challenge to that placement.

3. Initial Placement Notes:

3.1. As stated, HS GPA presents the primary driver for math placement. However, if employment of MI or SB test score points to a more favorable placement, students may choose the alternative most conducive to academic plans.

3.2. Within an explicit time frame (following course registration, but before start of the applicable term), new information (final HS GPA, new ACT math subscore) may become available. In such situations, placement is reassessed; changes to course registrations may be either merited or required.

3.3. Students who sit for the Accuplacer math test outside of the regental system may furnish official test scores; such scores are considered/applied to the approved regental math placement process.

4. Student Challenge of Initial Placement:

4.1. Incoming students are not universally receptive to math placement outcomes. Any student who feels strongly about higher placement may opt to challenge by sitting for the Accuplacer test.

4.1.1. An established fee is assessed for each test attempt.

4.1.2. The maximal number of allowed test attempts is two.

4.1.3. Earned Accuplacer test score is used to calculate Challenge Index (CI). Developed for use across the regental system in 2019, the formula is as follows: {(HS GPA x 290) + AAF + 20}.

4.1.4. Calculation of CI hinges on student success specific to the Advanced Algebra and Functions Module (AAF) of the Accuplacer test. In its absence, CI is not calculated, and original placement remains intact.

4.2. Challenge through Accuplacer represents the system norm; however, at a subset of regental universities, students may challenge placement through ALEKS (a product of McGraw Hill). In contrast to Accuplacer, ALEKS surpasses simple proficiency testing; its PPL (Placement, Preparation, and Learning) Program engenders opportunity for each interested student to ascertain current skills, identify targeted level, obtain instruction designed to enhance skills/achieve target, and ultimately, sit for the exam used in math placement. Evaluated for regental purposes during a three-year pilot project, utilization status will transition from temporary to longstanding during the 2022-23 academic year; a suitable fee structure may be developed.

4.3. Note: Once a student initiates participation in a regental math course, the opportunity to challenge math placement concludes.

5. Exceptions:

5.1. Exception appeals are handled on a case-by-case basis by the requesting student's home university.

5.2. Any exceptions – which are intentionally rare - must be approved in advance of the census date established for the relevant term.

6. Inappropriate Course Enrollment:

6.1. Adherence to placement procedures is mandatory, not voluntary; students must register for courses as indicated by the math placement matrix.

6.2. Universities purposefully access information housed in the regental student information system to monitor appropriate course enrollments.

6.3. Upon identification, students who disregard placement directives are administratively withdrawn prior to census date for the term and notified of this outcome.

7. Additional Notes:

7.1. Testing Accommodations: The regental system conscientiously adheres to relevant legislation (South Dakota Human Relations Act of 1972, Rehabilitation Act of 1973, and Americans with Disabilities Act); in that spirit, each university offers reasonable accommodation for students who submit such requests in advance of scheduled test sessions.

7.2. Historical footnote: Traditionally, math placement procedures were set in BOR policy. In August of 2016, the board membership approved a transition from BOR policy to AAC Guidelines. However, changes to the placement matrix (specifically, material changes that directly impact the placement process) remain subject to BOR approval.

PLACEMENT CHART

Students may choose the highest placement from these options

COURSE	High School GPA	Math Index (MI) MI= 250 × HS GPA + 17 × MATH ACT*	Smarter Balanced Score	Accuplacer score (only if no valid HS GPA)	CHALLENGE INDEX CI = 290 × HS GPA + AAF** + 20 If student does not reach AAF domain, no challenge index	ALEKS PPL (may vary by campus)
MATH 095, 101 or MATH 103/093	Basic Placement- anyone can take these courses- there is no placement or prerequisite requirement for these courses					
MATH 114 w/094	$2.34 \leq HSGPA < 3.03$	MI 950 or higher	2543-2627	QAS 224-254	CI 950 or higher	32
MATH 103 or MATH 114	$3.03 \leq HSGPA < 3.55$	MI 1150 or higher	2628 or higher	QAS 255-300 or AAF 200-249	CI 1150 or higher	46
MATH 115 or MATH 120 or MATH 121/121L or MATH/STAT 281	$HSGPA$ is 3.55 or higher	MI 1300 or higher	NA	AAF 250-300 or Accuplacer SDCalculus 1-15	CI 1300 or higher	61
MATH 123 w/123L	$HSGPA$ is 3.55 or higher AND Accuplacer SDCalculus 16 or higher	MI 1300 or higher AND Accuplacer SDCalculus 16 or higher	NA	AAF 250+ AND Accuplacer SDCalculus 16 or higher	CI 1300 or higher AND Accuplacer SDCalculus 16 or higher	76
MATH 123	$HSGPA$ is 3.55 or higher AND Accuplacer SDCalculus 19 or higher	MI 1300 or higher AND Accuplacer SDCalculus 19 or higher	NA	AAF 250+ AND Accuplacer SDCalculus 19 or higher	CI 1300 or higher AND Accuplacer SDCalculus 19 or higher	89

*SAT is converted to equivalent ACT for MI calculation

** AAF (Advanced Alg. and Functions) Accuplacer Math score

Notes:

- Students are permitted to take the Accuplacer 2 times (student pays fee for each attempt; if no valid HS GPA- no charge for first attempt).
- Accuplacer domains: QAS: Quantitative Reasoning, Algebra & Statistics; AAF: Advanced Algebra and Functions
- Test Scores and HS GPA must be no more than 5 years old to be used for placement.
- ALEKS and Accuplacer access may vary by campus.