

Minutes of Math Issues Committee
Friday, November 9, 2007
Western Connecticut State University
Student Center, Room 209

Present — Jean-Marc Cenet (Tunxis), Robert Clark (Tunxis), Elaine Dinto (Naugatuck Valley), Paul Edelen (Manchester), Miguel Garcia (Gateway), Pat Hirschy (Asnuntuck), Mark Leach (Housatonic), Joy Mark (Quinebaug Valley), Rachael Schettenhelm (Gateway)

The **meeting convened** at 11:00.

Minutes from the October 12, 2007 meeting were unanimously approved.

Discussion centered on our charge to recommend a common Accuplacer cut score, or band of scores, "indicating when students are ready to go into collegiate work."

Identifying the appropriate course —

The first order of business was to determine for which course we believe we are expected to recommend a score / band of scores, as Math Issues representatives had received conflicting information from their campuses. One interpretation was to recommend a score, or band, for placement into general education. It was noted that this would be a problem for many colleges, as some 100-level general education math courses require a much higher level of algebra skills than others and there are valid reasons for setting different scores for placement into different college level courses (College Algebra, Precalculus, Statistics, Math for the Liberal Arts, etc.)

While there is still a question as to what is considered college level math, with several colleges using Intermediate Algebra to satisfy the degree requirement in some programs, the group decided to focus our attention on trying to set an Accuplacer score, or band, for entrance into Intermediate Algebra.

NOTE: All colleges have math courses for degree credit in some specified programs that do not have Intermediate Algebra as a prerequisite. Part of the Community College mission is to serve students who wish to earn a two-year degree, not only to serve those who will transfer to 4-year institutions.

Identifying the appropriate Accuplacer test with which to begin —

Since all colleges will need to begin the Accuplacer testing process with the same test, the next item of business was to determine with which Accuplacer test (Arithmetic = AR, Elementary Algebra = EA, or College Level Math = CLM) each college begins. Currently the majority of colleges begin with the EA test (from which the adaptive test moves students down to AR or up to CLM); Quinebaug Valley and Gateway representatives said that their colleges are planning to switch to this format. It appeared to Committee members, from our list of placement scores, that the only college beginning with AR would then be Northwestern; in light of our charge, it was suggested that Elaine ask Greg Banks, about this issue.

Determining a cut score or band of scores for entrance into Intermediate Algebra —

Most of the meeting was spent trying to determine how best to allow for academic freedom, and the needs of individual college populations, yet come up with a plan. An entry level score higher than necessary wastes students' time and money, while an entry level score lower than an individual college believes appropriate will cause problems for students who will test into a course and then likely be unable to handle the material. Several statistics were discussed, along with why they would not adequately place students in all colleges.

Committee members then discussed the interpretation of Accuplacer Test scores found on the College Board website (www.collegeboard.com, under the Coordinator's Guide). For example, according to the website, for a "total right score of about 57" on the EA test, students "have minimal elementary algebra skills." These students can "perform operations with signed numbers, combine like terms, multiply binomials, evaluate algebraic expressions." A "total right score of about 76" means that "students at this level have sufficient elementary algebra skills. By this level, the skills that were beginning to emerge at a Total Right Score of 57 have been developed." Students at this level can "add radicals, add algebraic fractions, and evaluate algebraic expressions, factor quadratic expressions in the form $ax^2 + bx + c$, where $a = 1$, factor the difference of squares, square binomials, solve linear equations with integer coefficients." The group agreed that a minimum score of 76 is closer to our expectations for entry into Intermediate Algebra than is a score of 57.

One identified problem is that, although our colleges have 80% compliance with an approved list of topics, we have not yet agreed upon common student learning outcomes for Elementary Algebra.

The Committee also discussed the possible development of outcomes for Intermediate Algebra; our task will be complicated by the fact that individual colleges have planned their Intermediate Algebra content in part (1) on their Elementary Algebra content, also (2) on whether the material necessary for Calculus is taught in one Precalculus course or in a combination of two courses, College Algebra plus Trigonometric Functions.

Another substantial concern of Committee members regarding use of Accuplacer alone for placement is that the College Board online description of the EA test does not appear to take into account AMATYC (American Mathematical Association of Two-Year Colleges) recommendations and NCTM (National Council of Teachers of Mathematics) Standards. Some Accuplacer tested skills are de-emphasized in the Standards, while some other skills, which we believe are essential, do not seem to be addressed in the online EA test description.

After much discussion, the Committee proposed the following plan to set a trial band and to initiate research —

- We will identify a band for a minimum cut score for placement into Intermediate Algebra by January 1, 2008. A band allows colleges to focus on individual populations who enter a variety of programs. The band proposed by the Committee members present was the interquartile range of the current minimal entrance scores, i.e., 54-66 as a beginning score, from a current entrance beginning score of 45-81. Committee members strongly believe that this is an appropriate place to begin.
- We propose doing a pilot in the spring, with assistance from Institutional Research, in testing the impact of the proposed minimum band of scores, i.e., in determining the number of students who would be placed higher or lower if our proposed band were implemented. If repercussions are minimal, and the colleges could accommodate

changes in numbers of sections, the band could be implemented system-wide in the fall of 2008.

- Although the System has been using Accuplacer for some time, many math faculty have questioned using only this test, which has a skills focus and does not appear to take into account principles recommended by national professional organizations. A dialog with College Board representatives may be helpful in assessing alignment between the test and our outcomes; some Committee members could initiate such a discussion in the spring.
- A broader placement process is essential: the process should be expanded as recommended by the AMATYC Position Statement (<http://www.amatyc.org/>). Placement is an art, and an Accuplacer cut score should be only one aspect. Other assessment tools such as SAT scores, CAPT scores, Credit by Exam scores, high school grades, level and number of math courses taken, etc., should be used in the placement process.
- We will initiate communication with, and seek input from, CSU groups; since many of our students transfer to the CSU system, discussion with colleagues from these institutions makes sense.
- Input from other mathematics organizations such as MATYCONN will be invited / discussed.
- Identifying a process for high school students that would make Accuplacer more effective, i.e. a way to have students refresh their algebra skills prior to taking Accuplacer, without teaching to that test, will be explored. Programs such as Accuplacer A+ and Western CT State University's Bridges Program should be considered, as should the work of the MAT Council.
- Our CCs offer a variety of "combination courses" which combine two developmental courses, in order to shorten the time for qualified students to get through the developmental sequence; these work in specific situations and should remain part of the implementation plan. We will explore ways to share ideas throughout the system.

Note —

- It is our understanding that the System Office recognizes that it is essential that any plan for a placement process must be flexible and ongoing. Assessment and revision of scores must continue, as students will have to be tracked to see if the placement cut scores are working; adjustments may be necessary.
- It is our understanding that additional resources may be necessary for subsequent implementation of a common band of scores. At some colleges, the implementation may initially require more developmental sections than currently exist.

CT Academy for Education in Mathematics, Science, and Technology —

Dr. Richard Cole, President and CEO of the CT Academy for Education, contacted Elaine with a request that the Math Issues Committee keep him and the CT Academy apprised of any recommendations made to the Central Office. The Academy received a request from Dr. Janice M. Gruendel, the Governor's Senior Policy Advisor on Children and Youth, to conduct a quick survey that "compares the graduation requirements of CT school districts (all, if possible) with the entry requirements of CT's community colleges and four-year colleges." Their interest is to "see how generally (and specifically) close ARE current HS degree exit requirements in CT in relation to current CT post-secondary entrance requirements." The Academy has created a chart that shows the math / science / technology graduation requirements for the 133 high school districts. They recognize "that Public Act 07-7 is directing the CSDHE to review the status and content of transfer, articulation, common course numbers, and placement test scores for CC and CSU." The Academy's

activity is to "see if there now exists common exit (high school) and entry (2-4 year college) expectations for student readiness in mathematics and science."

Miguel as facilitator — Elaine thanked Miguel for facilitating the discussion with Dr. Mary Ann Affleck at the last Math Issues meeting; all agreed that he did an excellent job!

2007-2008 meeting schedule: 12/14 at GWCC, 02/08 at MCC, 03/14 at NVCC, 04/18 at UConn, 05/09 if pending business, CCSU.

The meeting adjourned at 1:00 p.m.

Respectfully submitted,
Elaine Dinto