

To: NYSMATYC Membership

From: Tim Grosse, NYSMATYC Curriculum Chair

Date: 4/2/08

Re: 2007-2008 Curriculum Survey Results

The topic for the 2007-2008 NYSMATYC Curriculum Survey is about the preparedness of traditional incoming students in mathematics at your college.

The survey was distributed to 46 NYSMATYC represented colleges. Of the 46, 24 surveys were submitted via electronic submission, either through e-mail or through the NYSMATYC website (Thanks to Ken Mead for all his help making the survey available on the website again this year). Thus, this year's survey yields a 52.2% response rate. To encourage participation three mass e-mails were sent to campus representatives and a plea was e-mailed to each of the campus representatives that had not yet submitted the survey. The surveys were distributed 2/29 and were all submitted by 4/1. I would like to thank all the campus representatives that took the time to complete the survey.

Executive Summary

This survey used the percentages of students taking developmental courses at the participating colleges as an indicator of the preparedness of traditional incoming students in mathematics. The goal of including the first nine questions on the survey was to compare the percentage of traditional students in the colleges with the percent of students taking developmental courses. However, no correlation resulted using this particular indicator.

Of the 24 institutions responding to the *Issues of Faculty Concern*, all agreed that *unrealistic student understanding of the demands of college work* was a moderate to major problem. In addition, over 90% thought that *Too many students needing remediation* and over 95% thought that *Low student motivation* was either a moderate or major problem. However, only 62.5% thought *Curriculum alignment between high schools and college* was a moderate or major problem.

Of the schools responding, 91.7% provide both peer and professional tutoring in mathematics. 58.3% of colleges also provide some type of online or computer programs to support their mathematics instruction. Programs and online support used include MyMathLab and Coursecompass, Educo, MathZone, ModuMath, Minitab, and Plato. Only about 25% claim to be using Learning Communities to support mathematics though.

Lastly, many respondents provided comments on the issue of high school student preparedness. These comments were generally concerns about students preparedness and expectations for college level work.

The summary of the questions on the survey is attached in the following *Summary of Results Section*. For further information on any question or if you are interested in more in-depth review of any part of the survey, please contact me at tgrosse@sunyjefferson.edu or (315) 786-2451.

Summary of Results

Note: The Margin of Error was computed using the quick method of computation ($1/\sqrt{n}$) and then multiplied by the appropriate FPCF (assuming a population size of 46).

Table 1 Services colleges provide to support mathematics	Count	Percent
peer tutoring in mathematics	22	91.7%
professional tutoring in mathematics	22	91.7%
math lab	18	75%
freshman seminar or college prep course	15	62.5%
learning communities	6	25%
mathematics club or organization	9	37.5%
online or computer programs	14	58.3%
Other	3	12.5%
Margin of Error = 14.3%	N = 24	

Table 2 Issues of Faculty Concern	Not a Problem Count (Percent)	Minor Problem Count (Percent)	Moderate Problem Count (Percent)	Major Problem Count (Percent)
Unrealistic student understanding of the demands of college work	0 (0%)	0 (0%)	11 (45.8%)	13 (54.2%)
Too many students needing remediation	0 (0%)	2 (8.7%)	7 (30.4%)	14 (60.9%)
Low student motivation	0 (0%)	1 (4.2%)	15 (62.5%)	8 (33.3%)
Successful progress of students through developmental courses to credit-bearing mathematics courses	2 (8.3%)	3 (12.5%)	11 (45.8%)	8 (33.3%)
Curriculum alignment between high schools and college	1 (4.2%)	8 (33.3%)	8 (33.3%)	7 (29.2%)
Margin of Error = 14.3%	N = 24			

General Comments from Respondents:

- I feel high school math focuses on skills and not understanding. For example, 1 good student, just out of high school, may be able to compute a slope but has no idea of its meaning in a contextual situation
- 78% of new students tested through COMPASS need remedial coursework in mathematics.
- The college has started a College Success Program that is aimed at identifying students with weakness subjects. The students were tested in the summer and those identified needing extra help are encouraged to sign up for this program. It is a 3-week program before fall semester where the students take the

developmental courses they needed and this is followed by a course with the same instructor in the fall semester. I believe there is a team of instructors who work together with these students.

- A lot of focus in high schools on calculator use (for graphing). Students lack basic skills in fractions, factoring, solving higher order equations (quadratics). Very short attention spans and lack of motivation to work on recommended assignments out of class.. I have seen more and more just guess at an answer rather than go through the rigors of solving it by hand.
- Each semester is different, each course is different. Students taking courses designed for their major are more likely to be motivated to do well. I wouldn't say there is a big problem with remediation (12b). However there is a problem with students placed in a course that is too high for them and although they were advised, they don't want to take a lower level course.
- Students have unrealistic expectations that the behavior that was acceptable in high school will be accepted at the college level, both academically and socially. Students have made comments that their grades in high school were not a reflection of their academic ability but more of the effort they put into the course. As compared to 1997 and 2002, in the fall 2007 semester more students came in at the developmental level or attempt (usually without success) our first algebra course. Students are not showing that they are academically prepared for the rigorous nature of a college-level mathematics course. By reviewing high school transcripts, our department has ample evidence that students either: a) stop taking math after they pass the Math A regents, b) are pushed through the mathematics sequence at their high schools with insufficient grades, or c) the grades on a student's high school transcript are not a true indicator of the student's ability or competency of the material. Therefore, many of the students we see are not able to be successful as a first-year traditionally aged student in a course at the college-level.
- Lack of practice with basic skills in arithmetic and algebra that are useful and necessary on the college level. Demands on student time by family, work, and other outside interests. Lack of understanding of the standards for attending college courses.
- High Schools should not allow students to go without mathematics during their last two years (or even one year) of high school. Some kind of math prep course should be mandatory even if it is only a review of algebra.
- Many students do not come with the appropriate work ethic needed to be successful in most math courses. Also they always seem to approach exams with the attitude that "I can make it up, can't I?" or "Is there going to be extra credit assignments to improve my grade?" or "When are we going to review?" Students who do poorly usually show no familiarity with the material, or think that because they may have seen the material before that it means they are still competent in the material (assuming that they were ever competent). Hard to believe, but many students give the impression that they really don't care. Students who have graduated from H.S. with little more than passing MATH A have minimal background. Advisement and placement into correct level math course is critical, yet placement is not an exact science and advisement

by faculty (and here advisement into math courses can be done by any faculty advisor) is less than perfect where a student is frequently placed! into a course for (well meaning reasons such as transferability of a course etc.) that is not appropriate for him/her. There doesn't seem to be any depth to the skills and competencies (knowledge) that many students have. I know it is sacrilege to say but the use of calculators has not helped.

- 1. Many students are not held accountable for the completion of all of their work in high school, and as a result, arrive ill-prepared for the rigors of college work. The prepared students tend to go to the 4-year schools. 2. Students seem unwilling or unable to spend the necessary amount of time practicing by doing problems. 3. Students progress through courses without mastery. 3. Extensive use of the graphing calculator in high school has decreased understanding of concepts and proficiency in skills. Calculators tend to be used more as a crutch than a tool. 4. Students had a poor curriculum with Math A and Math B. 5. Students in high school tend to have been allowed to make up all work missed (including exams) and turn assignments in late. Often they arrive in college expecting the same will be true. 6. We see poor attendance and late arrivals, including a lack of maturity and readiness for college. 7. Students tend to shape up and work harder after a semester or two of college and then take their courses more seriously. 8. Some cite classroom management problems. 9. Maybe we would see improvement if students were expected to learn high school-level classes while in high school and college-level classes while in college. 10. We do help many, but not enough, of the students succeed at college. 11. Students need to learn to bring their book to class and to take notes for reference.
- It seems like the more New York State has changed the high school math course sequence (from the traditional - algebra, geometry & trigonometry) the worse the students do in our college classes. Students seem to rely more and more on calculator use, lacking an understanding of the underlying concepts needed to solve a problem. Students are not taught to be independent learners in high school. They expect "spoon-feeding" and are not capable of studying on their own. Students are very good at short term memorization but lack long term retention.
- The following are some comments provided by myself and my colleagues: 1.) State of preparedness is lamentable and probably will not improve until the traditional model of Algebra 1 → Geometry → Algebra 2 → Trigonometry is reinstated. 2.) Overuse of calculators in high school and grading of NY State High School Math Exams not as a percentage. 3.) It is hard to answer these questions generally, as my responses would probably be different, depending on the level of the course I was considering. These issues are of greater importance in developmental and lower level math classes than they are in higher level courses. 4.) Required and regular use of calculators is allowing students to bypass the learning of foundational basic arithmetic skills. There is a lack of in depth teaching of topics at the high school level due to the required coverage of numerous topics. Students are familiar with topics from high school but their depth of understanding is not sufficient for

mastery. Scoring of the Regents exams on a curve rather than a percentage does not reflect the true competency of the student's mathematical abilities.

- 1.5 year Math A makes it hard to decide what's equivalent to Basic Algebra. At higher levels, it's easier to determine equivalence, like Precalculus and Calc I. We have approximately 18 sections of developmental math per academic year. Students in upper level math like Precalculus are also not as prepared as they should be; too many have trouble with algebra. Calc I students are most prepared. The Intermediate Algebra instructor says that 1/3 of his students are not well prepared for his class. In Section I, the total math students included developmental, regular math classes, and Business Math.
- It seems that the algebra skills of entering students are significantly lower than in the past
- Many of us at the College believe that educators should be in charge of education. The No Child Left Behind policy has hindered not enhanced education. The Regents Program is no longer something that New York State can be proud of. regarding sec 1, quest 10: In fall 2007 we switched from an in-house placement test to the Compass Placement program. However, we did not see a dramatic change in the number of students placing into our developmental courses. regarding sec 1, quest 1-3: the percentages given include students in our dual credit program regarding sec 1, quest 5, 7, 9: the numbers given include the students in developmental level mathematics
- The short time period of a semester is what they seem most unprepared for. They delay getting help or wait for me to suggest it and it is most likely too late. They also don't know how to do homework on their own, not in the actual class period but on their own. If it isn't graded they don't value it and I don't grade homework as they need to learn to do it so they can learn the material.