UNIVERSITY SYSTEM OF GEORGIA TRANSFORMING COLLEGE MATHEMATICS IMPLEMENTATION PLAN

FEBRUARY 2014

AD HOC STEERING COMMITTEE: IMPLEMENTATION PLAN

INTRODUCTION

In January 2013, the University System of Georgia (USG) formed a system-wide taskforce charged with determining ways to improve success rates in gateway mathematics courses as part of the Complete College Georgia initiative. The work of this taskforce culminated in July with the development of a document that included a set of recommendations that have provided direction to the transformative momentum that is spreading across the state[1]. In September 2013, the USG Office of Educational Access and Success, with advice from the Advisory Committee on Mathematical Subjects (ACMS) Executive Committee, formed an Ad Hoc Steering Committee of mathematics faculty to direct the implementation of the recommendations.

The Ad Hoc Steering Committee, formed by active mathematics leaders representing the different sectors from the USG, was tasked to work in conjunction with the ACMS Curriculum and Transfer of Credit Subcommittee (*see both memberships below*) to delineate an implementation plan to execute the Taskforce recommendations.

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[1] University System of Georgia: Transforming College Mathematics, July 2013 http://www.usg.edu/educational_access/documents/transforming_remediation/TaskForceMath.pdf

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The eight recommendations of the USG Taskforce on the Role of Mathematics in College Completion were:

1. Focus on supporting success in college credit-bearing, gateway mathematics courses for *all* students.
2. Align gateway mathematics course sequences with academic programs of study. In particular, College Algebra should not be the default class for non-STEM majors.
3. Implement a co-requisite approach to support student success in gateway mathematics courses.
4. Develop year-long mathematics pathways for students with significant gaps in preparation.
5. Use multiple measures to place students in gateway courses and appropriate supports.
6. Terminate use of COMPASS as an exit examination.
7. Align the outcomes of gateway mathematics courses with the Common Core Georgia Performance Standards (CCGPS) for Mathematics.
8. Develop advising systems and protocols for placing students in gateway mathematics courses and co-requisite supports that align with their intended programs of study.

On September 27, 2013 both of these committees met at Gordon State College and started deliberating on the set of action steps that would take these recommendations to fruition, and the eight recommendations from the Task Force were assigned to different workgroups. "***Recommendation 1: Focus on supporting success in college credit-bearing, gateway mathematics courses for all students"*** is an overarching recommendation. Recommendations 2 and 7 fell directly under the domain and scope of the ACMS Curriculum and Transfer of Credit Subcommittee and were left for this committee to evaluate and implement. This document will address in detail recommendations 3, 4, 5, and 8 and will serve as a link to the work being accomplished by the ACMS subcommittee. Recommendation 6 has been handled by the system office. For each of the recommendations, this report will provide 1.) the background rationale for the recommendation, 2.) a set of detailed implementation parameters, and 3.) recommendations that will serve as a blueprint for the system-wide transformation. This document will also serve as an active repository of best practices, including links to sample curriculum proposals, sample syllabi, and curriculum materials available to assist the institutions as they transition to the new models.

RECOMMENDATION 1

Focus on supporting success in college credit-bearing, gateway mathematics courses for all students.

A clear overarching recommendation which propels many of our transformative efforts is to divert our focus from remediation in lower division courses to enhancing and supporting success in the college credit-bearing courses. This implementation plan will address this issue directly in recommendations 3, 4, and 5 by providing an actionable strategy of just-in-time support, year-long models and an appropriate placement strategy that targets a higher probability of success in the college level course.

RECOMMENDATION 2

Align gateway mathematics course sequences with academic programs of study. In particular, College Algebra should not be the default class for non-STEM majors.

According to the Task Force Report, *"Most students in System colleges now take College Algebra as their entry-level mathematics course. College Algebra was designed explicitly to meet the needs of students who are preparing to take Precalculus and Calculus. Most students in non-STEM majors would be better served by enrolling in Quantitative Skills and Reasoning or Introduction to Mathematical Modeling, possibly followed by a statistics course in Area D (Natural Science, Mathematics, and Technology) of the core curriculum. Quantitative Skills and Reasoning and Introduction to Mathematical Modeling were designed to meet the needs of non-STEM majors and include significant real-world applications. They are appropriate, rigorous mathematics courses for a broad array of non-STEM programs of study in which deep knowledge of and facility with basic mathematics are essential to prepare students for responsible citizenship".*[1]

To ensure that mathematics courses are properly utilized and that students are advised into the right path, it is vital that course descriptions accurately represent the goals of the class that the objectives for each class demonstrate how these courses serve the different programs of study.

The ACMS Curriculum and Transfer of Credit Subcommittee is currently in the process of revising the descriptions of all three mathematics gateway courses: MATH 1001 Quantitative Skills and Reasoning, MATH 1101 Introduction to Mathematical Modeling, and MATH 1111 College Algebra. These courses are being revised in the context of the role that they play in providing the mathematical skills needed for each major. The final revisions of these courses will be brought forward for approval during the annual ACMS meeting in February 2014.

Advising students to take the appropriate gateway course will be a critical part of this transition, and the Ad Hoc Steering committee will be at the vanguard of the dissemination of the information, educating faculty and professional advisors of the rationale for all these initiatives (see recommendation 8).

RECOMMENDATION 3

Implement a co-requisite approach to support student success in gateway mathematics courses.

"The traditional approach to learning support in the University System of Georgia colleges has been to enroll underprepared students in special non-credit courses, which were designed to allow them to learn, or most often relearn, key prerequisites for college-level introductory courses. These learning support classes in mathematics include a wide variety of topics typically taught in middle school and high school, are not specifically targeted to the learning needs of individual students, and are not tied to the content of the college-level class".[1]

The Task Force then recommended that a new set of co-requisite support courses be developed system-wide, and the Ad Hoc Steering Committee was charged to

- Review co-requisite models in Georgia and in other states to identify a small number of recommended models, including information about the number and type of credits offered, staffing, student population, and financing.
- Build co-requisite curricular materials to provide just-in-time support to students.
- Identify common course numbers for support courses/lab components.
- Develop resources for advisors for placing students in co-requisite support models.

During the fall of 2013 the Ad Hoc Steering Committee reviewed models in Georgia and other states and compiled a set of implementation parameters, recommendations and best practices. These implementation guidelines and resources will assist schools in their planning process and will provide the support needed to achieve a uniform and solid implementation of the co-requisite approach system-wide. The characteristics and parameters of the implementation referred to in the first three parts of the charge will be addressed below, while the last item will be addressed in the Recommendation 8 section.

CO-REQUISITE APPROACH

IMPLEMENTATION PARAMETERS AND RECOMMENDATIONS

Lab/Support Component: General Parameters

- Institutional credit only
- 1 - 2 Credits
    - Examples: 1 credit – 2 contact hours/week
- Students must remain enrolled in both the gateway course and the corresponding Lab/Support course. (Students who withdraw from one of these two courses will have to withdraw from the other.)
- Students passing the gateway course will automatically satisfy their LS Math requirement.
- Each gateway course should have its own co-requisite component. We recommend institutions to adopt the following common course numbering*:
    - MATH 0997: *Support for Quantitative Reasoning* as the co-requisite course for Math 1001.
    - MATH 0998: *Support for Mathematical Modeling* as the co-requisite course for Math 1101.
    - MATH 0999: *Support for College Algebra* as the co-requisite course for Math 1111.

* *Rationale*
    - *Students in the co-requisite courses are considered LS students and all the LS policies apply seamlessly.*
    - *The content is aligned with the numbering scheme.*
    - *Allows more staffing flexibility as faculty who do not meet SACS requirements for collegiate level course would be able to teach the co-requisite sections*

- Grading Scheme for the Co-Requisite Support course
    - A, B, C, D, F - Grading Scheme
    - or
    - S/U (Satisfactory/Unsatisfactory)
    - A student may receive a higher or lower grade in the co-requisite course than the one assigned in the collegiate course.
    - A student who fails to pass the collegiate course must repeat BOTH the collegiate course and the co-requisite course.Note: if there are a substantial number of students passing one but not the other, then there will be a need to reassess the model and/or placement index scores

Co-requisite Course: Staffing

- Preferably, the same instructor will teach the Lab/Support component, but it is also possible to use graduate teaching assistants, supplemental instructors, or other suitable personnel to meet the institution's needs. Compensation for the Lab/Support component can be based on contact hours or alternate means of compensation: course reassignment, trade-off with office hours or other duties.

Lab/Support Component: Best Practices

- The focus of each session of the co-requisite support course should be closely linked to the material covered in the gateway course at the time.
- Students participating in the co-requisite support component should be mixed with non co-requisite students in the gateway courses.
- Co-requisite sections should have sensible enrollment to foster an environment able to provide more one-on-one instruction/tailored instruction/needed intervention.
    - Examples of these implementations consist of a total of 15-22 students participating in both the lab/support and the regular gateway course,
    - Or a smaller group of around 10 students participating in the Lab sessions, mixed with a larger group of students participating only in the gateway course.
    - Institutional needs may vary
- Mandatory attendance
    - Common Practice: Attendance is included as part of the grade for the co-requisite support course.

Resources

- Schools implementing co-requisite course
    - College of Coastal Georgia
        - Curriculum Proposal http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1000AMATH1000QProposal.pdf
        - Sample Syllabi http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1000QRev041013.pdf http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1000ARev041013.pdf
        - Additional Curricular Resources and Samples

http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1001CoReqLessons.zip (zipped file)
http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1001CoReqReviewExercises.zip (zipped file)

- Atlanta Metropolitan State College
  - Curriculum Proposal and Detailed Description
    http://www.usg.edu/educational_access/documents/transforming_remediation/CoCurricular00991111.pdf
- Gordon State College
  - Curriculum Proposals
    http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0998Proposal.pdf
    http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0999CourseProposal.pdf
  - Sample Syllabi
    http://www.usg.edu/educational_access/documents/transforming_remediation/MATH09981001Fa13.pdf
    http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0999SylFa13.pdf
- Kennesaw State University
  - Detailed Description
    http://www.usg.edu/educational_access/documents/transforming_remediation/ColAlgeCoreqKSU.pdf
  - Sample Syllabus
    http://www.usg.edu/educational_access/documents/transforming_remediation/Math1111LsyllabusCrews1.pdf
- Bainbridge State College
  - Detailed Description
    http://www.usg.edu/educational_access/documents/transforming_remediation/PairedMATH0099andMATH1111.pdf
- Dalton State College

  - Curriculum Proposal and Detailed Description
    http://www.usg.edu/educational_access/documents/transforming_remediation/CoCurrMathProposals.pdf
  - Sample Syllabi
    http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0091syl.pdf
    http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0092syl.pdf

- Advising Guidelines
  - See the advising section for further information.
    http://www.usg.edu/educational_access/documents/transforming_remediation/AdvisingTemplateMath.pdf

Additional Notes

- Any concern regarding the addition of one credit hour into a plan of study is easily dismissed by considering that the student is actually replacing 4 credits of the LS course with 1-2 credits of the co-requisite course and potentially repeating the 3 hour course. The one hour co-requisite does not increase the number of hours required for completion of a degree.

RECOMMENDATION 4

Develop year-long mathematics pathways for students with significant gaps in preparation.

For students with larger gaps in preparation and that require more support than the co-requisite approach can provide, the Task Force recommended developing year-long pathways that would enable these students to complete the gateway math course within one academic year. The Ad Hoc Steering committee was then charged to:

- Examine national year-long pathway curricular models such as the New Mathways Project, Statway™/Quantway™, New Life Project, etc.
- Recommend one or a small number of year-long courses/curricular options.
- Provide guidance for implementation, including course numbers, number and type of credits, who enrolls in courses, etc.
- Develop resources for advisors about year-long models.

After a careful examination of the different models and after evaluating the particular needs of the University System of Georgia, the committee recommends this year-long model to be comprised of a foundations course followed by its corresponding gateway course, taken with co-requisite support. These year-long models will be appropriately aligned for both STEM and non-STEM pathways. The characteristics and parameters of the implementation referred to in the first three items of the charge are addressed below, while the fourth item of the charge is once again deferred to the section devoted to recommendation 8.

YEAR-LONG PATHWAYS

Implementation Parameters and Recommendations

- Paths: STEM (MATH 1111) and non-STEM (MATH 1101 and MATH 1001)

  - To allow for ease in transferability and enrollment at smaller schools, we recommend a first semester developmental course followed by a second semester gateway course with co-requisite support.
  - Students on the STEM path should be required to take the co-requisite course along with the gateway course during the second semester. We recommend this as a requirement.
  - Students on the non-STEM path should be required to take the co-requisite course along with the gateway course during the second semester for additional support. Students who have demonstrated exceptional performance in the first semester developmental course may apply for exemption from the co-requisite requirement.
- The first course in this year-long sequence awards institutional credit only.
  - Recommendation: 3 - 4 credit hours
  - Special note: the first semester developmental course for both paths should have the same number of credit hours.
- Each first semester developmental course will be tailored specifically to the gateway course. We recommend that institutions adopt the following common course numbering (which complements the recommendations for co-requisite course numbering in Recommendation 3):
  - MATH 0987: *Foundations for Quantitative Reasoning* to prepare for (MATH 0997 and) MATH 1001
  - MATH 0988: *Foundations for Mathematical Modeling* to prepare for (MATH 0998 and) MATH 1101
  - MATH 0989: *Foundations for College Algebra* to prepare for MATH 0999 and MATH 1111
- Switching math pathways
  - Students who start in the STEM path and switch to the non-STEM path
    - Recommendation: No additional remediation needed.
  - Students who start in the non-STEM path and switch to the STEM path

        - Recommendation: Must take co-requisite course for MATH 1111, as well as succeed at one of the following (up to institution):
            - Pretest
            - Grade of A or B in first semester non-STEM developmental course
            - Take first semester developmental course for 1111
        - Special Note: Students who take the last option above should only be those that do not pass a pretest or did not earn a grade of A or B in the first semester non-STEM developmental course. Such students (of which there should be very few) will require three semesters to finish their gateway math course. This is no more than the current practice.
        - Rationale: We do not want to create a "loophole" that will allow a student to simply start with the less algebraic non-STEM path and switch to the STEM path.
- Learning Support Policies
    - Students will exit learning support upon successful completion of the gateway mathematics course.
        - Rationale: Students in the STEM path should take the co-requisite course and hence will not complete the learning support requirements until they finish the gateway course. As students on the non-STEM path may later switch majors, they should continue to be tracked as learning support students until they pass the gateway course.
    - Students who fail to exit from a foundations course within two semesters will be placed on Learning Support exclusion for a period of one year.
- Grading Scheme for foundations courses: A, B, C, IP, F
    - We recommend keeping the current grading policies for Learning Support mathematics.

Support Component: Staffing

- The first semester developmental course can be taught/supervised by full-time/part-time faculty, but different implementations may include the use of graduate teaching assistants, supplemental instructors, etc. contingent on the availability of personnel. Compensation for the Lab/Support component can be based on contact hours or alternate means of compensation: course reassignment, trade-off with office hours or other duties.
- The first semester developmental course may be lecture-style, modularized, flipped or a hybrid of these methods.

Resources

- Schools implementing Year-long Pathways
  - College of Coastal Georgia
    - Curriculum Proposal http://www.usg.edu/educational_access/documents/transforming_remediation/CurriculumProposalMATH987andMATH989.pdf
    - Sample Syllabi http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0987SYLLABUS.pdf
    - http://www.usg.edu/educational_access/documents/transforming_remediation/MATH0989SYLLABUS.pdf
  - Georgia Highlands College
    - Piloting yearlong-pathway for 1001
    - Sample Syllabus http://www.usg.edu/educational_access/documents/transforming_remediation/GeorgiaHighLandsMLCS0099syllabusFall2013.pdf
  - Middle Georgia State College

        - Yearlong Pathway for 1101 (98-1101)
        - Detailed Description http://www.usg.edu/educational_access/documents/transforming_remediation/MidGaLSyearlongMath1101.pdf
- Additional Resources
    - Yearlong Pathway for 1111 (including course description, course content, course outcomes, and student learning objectives for MATH0989) http://www.usg.edu/educational_access/documents/transforming_remediation/GaHighlandsLSyearlongMath1111.pdf
    - Yearlong Pathway for 1001 (including course description, course content, course outcomes, and student learning objectives for MATH0987) http://www.usg.edu/educational_access/documents/transforming_remediation/CCGALSyearlongMath1001.pdf
    - Possible Textbooks for MATH 0987 (developmental course for MATH1001) http://www.usg.edu/educational_access/documents/transforming_remediation/CCGAPossibleTextbooksMATH0987.pdf
- Advising Guidelines
        - See the advising section for further information.
          General Template for Math Advising http://www.usg.edu/educational_access/documents/transforming_remediation/AdvisingTemplateMath.pdf

NATIONAL YEAR-LONG CURRICULAR MODELS

The Carnegie Foundation's Statway™/Quantway™

- Both programs have students finish the developmental and gateway course within two semesters.
    - Statway™: one year of mixed developmental and gateway courses.
    - Quantway™: one semester of developmental course (specific to the gateway course) and one semester of gateway course.

- SLOs: http://www.carnegiefoundation.org/sites/default/files/QW_math_SLO_final.pdf
- Design Principles: http://www.carnegiefoundation.org/sites/default/files/QW1_design_principle_3.10.11.pdf

UT Dana Center's New Mathways Project

- First Semester:
  - "Foundations of Mathematical Reasoning" (developmental course for non-STEM majors) http://www.utdanacenter.org/wp-content/uploads/NMP_FMR_overview_and_learning_outcomes_Sept2013.pdf
  - Math Success course http://www.utdanacenter.org/downloads/new_mathways_project/NMP_Frameworks_Course_Version_2_0.pdf
- Second Semester: Gateway course

AMATYC's New Life Project

- First Semester: "Math 97" type course called "Mathematical Literacy for College Students"(http://dm-live.wikispaces.com/Mathematical+Literacy+for+College+Students)
- Second Semester: Transition Course like "Math 99"
- Third Semester: Gateway Course

RECOMMENDATION 5

Use multiple measures to place students in gateway courses and appropriate supports.

Extensive data show that a combination of high school GPA and a standardized test score is a better predictor of student success in a gateway math course than either measure alone[2]. In the July report, the Task Force recommended that the University system develop a uniform placement index based on a student's probability of success in gateway courses.

Research from the system office has shown that while a combination of high school GPA and a standardized test prove to be good predictors of probability of success in gateway courses, the inclusion of an additional standardized test on a given model does not provide a great improvement in the amount of variation accounted for by the model. After careful evaluation of different models, the Ad Hoc Steering Committee recommends the use of a uniform placement index based on the Freshman Index (FI) already in use throughout the USG. The variation of this Freshman Index, to be called the Mathematics Placement Index (MPI) provides the opportunity to compute the index based on 3 alternative standardized test scores in conjunction with high school GPA. Similar to the FI, the proposed ACT and SAT versions of the MPI would be calculated as follows:

- MPI = 500 x (HSGPA) + 2xSAT Math
- MPI = 500 x (HSGPA) + (ACT Math x 42) + 88

With an equivalent COMPASS based alternative

- MPI = 500 x (HSGPA) + (COMPASS Math x c1) + c0

[2] *Using Probability of Success (POS) in Math 1111 to Determine LS Placement and Non-LS Intervention*, Leslie Caldwell, May 2013 http://www.usg.edu/educational_access/documents/transforming_remediation/ProbSuccessMATH1111.pdf

The parameters c1 and c0 should be empirically determined to match the Compass MPI to the ACT and SAT MPI so that the same threshold can be used for placement regardless of which MPI is used. Note: This is nontrivial and is recommended for further work in spring 2014.

- Thresholds: In determining placement into a given course, application of the indices requires two thresholds B and C with C strictly larger than B:

    - Threshold B: Students with scores below B should be placed into a year-long pathway.
    - Threshold C: Students with scores between B and C should be placed into a co-requisite model to receive support while taking a for-credit gateway course.
    - Students with a score above threshold C can be placed directly into the gateway course.
    - The precise thresholds should be determined as appropriate for MATH 1001, 1101, and 1111 in a manner that is consistent with a reasonable probability of student success, without dramatically increasing the population of learning support students, and with an emphasis on putting students who will benefit from it into a co-requisite model.
    - System-wide thresholds: It is recommended that there be system-wide recommendations for a minimum on the B and C thresholds with an institutional option to use higher thresholds.

The effects of incorporating a co-requisite model alongside a year-long pathway, with modified placement criteria, will vary depending on the institution and choice of threshold. However, a simple model using realistic numbers suggests that in a sequence of MATH 0097, 0098, and 1111, the new approach should

result in a lower number of credit hours required for each student to complete a gateway course.[3]

RECOMMENDATION 6

Terminate use of COMPASS as an exit examination.

In October 2013, based on the recommendations of the Task Forces on Remediation in English and Mathematics, the requirement to pass the COMPASS test to exit Learning Support was removed from the Academic and Student Affairs Handbook.

[3] *Estimating credit hours consumed in the college algebra pipeline in 3 semesters*, Tim Howard, November 2013 http://www.usg.edu/educational_access/documents/transforming_remediation/Estimatingcredithours.pdf

RECOMMENDATION 7

Align the outcomes of gateway mathematics courses with the Common Core Georgia Performance Standards (CCGPS) for Mathematics.

Each of the USG gateway courses, MATH 1001, MATH 1101, and MATH 1111 is closely aligned with material covered in Georgia's K-12 Mathematics Curriculum. Students with mastery of the K-12 standards will be well equipped to succeed in these gateway courses. The documents linked below show the mapping of USG gateway course standards onto the Common Core Georgia Performance Standards (CCGPS). The Common Core Standards for Mathematical Practice are particularly important in preparing students for college level mathematics courses since these are the underlying skills needed to place specific mathematical content items into a larger context of problem solving and application.

- Alignment with the Common Core Georgia Performance Standards
  - MATH 1001 Quantitative Skills and Reasoning http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1001CCGPSAlignment.pdf
  - MATH 1101 Introduction to Mathematical Modeling http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1101CCGPSAlignment.pdf
  - MATH 1111 College Algebra http://www.usg.edu/educational_access/documents/transforming_remediation/MATH1111CCGPSAlignment.pdf

RECOMMENDATION 8

Develop advising systems and protocols for placing students in gateway mathematics courses and co-requisite supports that align with their intended programs of study.

Transitioning to the new system of gateway mathematics courses and course support systems demands significant change in long-established traditions of college advising by both faculty and professional staff. At the most basic level, faculty members, professional advisors, and administrators responsible for course planning and scheduling will need to understand new system guidelines and the rationale for them. Advisors will need tools and knowledge to: (1) support students in the selection of an appropriate mathematics pathway for their desired programs of study; (2) match student needs to new support structures including co-requisite and year-long models; and (3) understand a new placement index based on multiple measures that predict the probability of student success in gateway courses. [1]

The charge proposed for this recommendation was

- The University System office should establish an Administrative Committee for Advisors with a point of contact on every campus that will:
    - Lead institutions in ensuring that System-wide recommendations for changes in remediation and recommendations concerning new math pathways are communicated to all advisors at their institutions.
    - Develop strategies for enabling students to choose as early as possible a coherent program of study and for enrolling them in the relevant mathematics gateway course.
    - Support the use of "Degree Works" in directing students to the correct pathway for their majors.
    - Communicate the role that "GAtracs" can play in the advisement of transfer students.

- The University System office should provide extensive regional direct training workshops for all advisors that enable them to properly and efficiently guide students in the selection of gateway mathematics courses relevant to the students' programs of study.

The Ad Hoc Committee with the assistance of the University System office will disseminate the resources referred to in this document to all the advising points of contact at every institution to facilitate the implementation of the new initiatives, and to educate the students, faculty and staff on the rationale behind all the transformative efforts.

The Ad Hoc Steering Committee is committed to hosting informative sessions at statewide conferences, to maintain faculty, professional advisors, and learning support personnel updated on all the new initiatives and the implementation process.

The document linked below illustrates the focused advising efforts needed to ensure that students receive appropriate mathematical preparation that aligns with their programs of study, and the amount of support necessary to ensure student success in mathematics. This document is written as a general template and serves as a resource for the design of advising materials that will serve the needs of each particular institution.

Math Advising Guidelines - General Template.docx
http://www.usg.edu/educational_access/documents/transforming_remediation/AdvisingTemplateMath.pdf

- Additional Resources
  - Georgia Perimeter College - Career advising tools http://www.usg.edu/educational_access/documents/transforming_remediation/AdvisingCareers.pdf
  - Georgia Perimeter College – MATH 1001 Brochure http://www.usg.edu/educational_access/documents/transforming_remediation/Math1001Brochure.pdf

- College of Coastal Georgia - Mathematics Pathways at CCGA http://www.usg.edu/educational_access/documents/transforming_remediation/Pathways-CCGA.pdf
- College of Coastal Georgia - Mathematics Advising Guidelines http://www.usg.edu/educational_access/documents/transforming_remediation/MathematicsAdvisingGuidelines-CCGA.pdf

TIMELINE

The final target for implementation of the recommendations at scale system-wide is fall 2015, with a rollout of at scale implementation at particular institutions starting in fall 2014. Among the institutions that will be implementing ether the co-requisite model or the year-long pathways at scale by fall 2014 are:

- Albany State University
- Bainbridge State College
- College of Coastal Georgia
- Dalton State College
- Georgia Highlands College
- Gordon State College
- Middle Georgia State College

While some of the institutions are planning to implement the new models by fall of 2014 and are just pending their corresponding faculty senate approval, some of these institutions are already implemented some of the models at scale (as of 02/21/14).

The following timeline was used as blueprint for the work of this committee in each of the recommendation. Given that these recommendations target very specific areas of transformation, we present this timeline with the intention that it will serve as a guide, with the necessary checkpoints aligned to our final goal of at scale implementation by fall 2015.

RECOMMENDATION 1: FOCUS ON SUPPORTING SUCCESS IN COLLEGE CREDIT-BEARING, GATEWAY MATHEMATICS COURSES FOR ALL STUDENTS.

Ongoing

RECOMMENDATION 2: ALIGN GATEWAY MATHEMATICS COURSE SEQUENCES WITH ACADEMIC PROGRAMS OF STUDY. IN PARTICULAR, COLLEGE ALGEBRA SHOULD NOT BE THE DEFAULT CLASS FOR NON-STEM MAJORS.

Q4 - 2013

The ACMS Curriculum and Transfer of Credit Subcommittee revises the descriptions of the gateway courses and recommends the mathematics course or course sequence appropriate for each discipline. Materials and resources are developed to inform advisors and students of the different pathways and their alignment to the programs of study.

Q1 - 2014

The resources explaining the alignment of the different pathways and the programs of study are disseminated by the ACMS to every campus via the Administrative Committee for Advisors (see recommendation 8).

RECOMMENDATION 3: IMPLEMENT A CO-REQUISITE APPROACH TO SUPPORT STUDENT SUCCESS IN GATEWAY MATHEMATICS COURSES.

Q4 - 2013

The University System of Georgia seeks ACMS endorsement of the co-requisite strategy. (ACMS Meeting on November 8th)

The Ad Hoc Steering Committee identifies a set of recommended co-requisite models and defines parameters for implementation which include, common course numbering for support/lab components, number and type of credits being awarded by the support/lab component, staffing, course sizes, and financing.

The Ad Hoc Steering Committee develops materials and resources for advisors placing students in co-requisite support models. (See recommendation 5 for placement thresholds)

Q1 - 2014

The advising resources explaining the different support paths (see recommendation 4 for year-long pathways) are disseminated to every campus via the Administrative Committee for Advisors (see recommendation 8).

Schools already implementing co-requisite approaches are contacted to perform a comprehensive assessment of the results obtained up to date.

Q2 - 2014

Schools already implementing co-requisite approaches prepare to go to scale in their implementation by fall 2014.

Schools planning to implement a co-requisite approach for the first time in fall 2014 need to finalize their local curriculum approval processes (support will be provided from other schools in this process).

Q3 - 2014

Several schools implement the co-requisite approach at scale, and a comprehensive assessment plan is put in place to evaluate the success of the initiative.

Q1 - 2015

The ACMS evaluates the at scale implementations and decides on the recommendation of a system-wide implementation by fall 2015.

RECOMMENDATION 4: DEVELOP YEAR-LONG MATHEMATICS PATHWAYS FOR STUDENTS WITH SIGNIFICANT GAPS IN PREPARATION.

Q4 - 2013

The University System of Georgia will seek ACMS endorsement of the year-long pathways. (ACMS Meeting on November 8th)

The Ad Hoc Steering Committee identifies a set of recommended year-long pathways and defines parameters for implementation which include, common course numbering for each semester of the year-long sequence, number and type of credits being awarded by part of the sequence, course sizes, and financing.

Models for year-long pathways are examined, such as the New Mathways Project, Statway™/Quantway™, New Life Project. Ideas from these models are used to develop recommendations for each of the gateway courses in the USG. Specific recommendations are developed for 1001, 1101, and 1111.

The Ad Hoc Steering Committee develops materials and resources for advisors placing students in the year-long pathways. (See recommendation 5 for placement thresholds)

Q1 - 2014

The ACMS evaluates the implementation recommendations of each of the yearlong pathways. (ACMS Meeting)

A set of schools work towards their local curriculum approval processes to implement year-long pathways by fall 2014.

Q3 - 2014

Schools implement the year-long pathways at scale, and a comprehensive assessment plan is put in place to evaluate the success of the initiative.

Q1 - 2015

The ACMS evaluates the at scale implementations and decides on the recommendation of a system-wide implementation by fall 2015.

RECOMMENDATION 5: USE MULTIPLE MEASURES TO PLACE STUDENTS IN GATEWAY COURSES AND APPROPRIATE SUPPORTS.

Q4 - 2013

A uniform placement index based on standardized test scores and high school grade point average (HSGPA) is developed and proposed for evaluation by the ACMS, Learning Support Directors and the University system office. This uniform placement index would serve as determinant of the amount of support the student need and what type of model (gateway, co-requisite or year-long) is more appropriate.

Q1, Q2 - 2014

The uniform placement index and the particular thresholds for each of the support models are approved.

Q3 - 2014

The uniform placement is used for the first time at schools implementing the co-requisite or year-long pathways.

Q1, Q2 - 2015

Depending on the observed success rates for fall 2014, the uniform placement index is reevaluated and new threshold levels are created if necessary.

Q3 - 2015

The revised thresholds of the uniform placement index are used system-wide, knowing that these may not be definitive as further assessment may be necessary to ensure the appropriate level of support is provided for all students.

RECOMMENDATION 7: ALIGN THE OUTCOMES OF GATEWAY MATHEMATICS COURSES TO THE COMMON CORE GEORGIA PERFORMANCE STANDARDS (CCGPS) FOR MATHEMATICS.

Q4 - 2013

The ACMS Curriculum and Transfer of Credit Subcommittee revises the descriptions of the gateway courses and aligns the outcomes to Common Core Georgia Performance Standards.

RECOMMENDATION 8: DEVELOP ADVISING SYSTEMS AND PROTOCOLS FOR PLACING STUDENTS IN GATEWAY MATHEMATICS COURSES AND CO-REQUISITE SUPPORTS THAT ALIGN WITH THEIR INTENDED PROGRAMS OF STUDY.

Q4 - 2013

The University System office establishes an Administrative Committee for Advisors with a point of contact on every campus.

Q1 - 2014

The University System office assists the ACMS and the Ad Hoc Steering committee in communicating all the changes being implemented and assists in the dissemination of materials and resources to all the appropriate advisors in each institution.

Q3 - 2014

All the new strategies and models being implemented become part of Degree Works.