



**Student Success
Initiative**

Streamlining the First Year: Developmental Math Reform

Project Sponsor: Emanuel Pollack, Interim Vice
Provost for Undergraduate Affairs
Project Lead: Jenny Ross, MSCS Director of
Developmental Mathematics

Project Management Plan

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*Adapted from rethink PSU 2014-15 Project Management Template.
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Purpose:

The Department of Mathematics, Statistics and Computer Science is proposing a number of revisions in the developmental and precalculus mathematics courses. This project aim at the following goals:

- Improving students success rates in these courses;
- Making sure that students passing a prerequisite course are well prepared for the following course;
- Reducing the number of semesters students spend taking non-credit bearing courses.

Scope:

Proposal 1: Introduction of Math 110 College Algebra

Analyzing data from recent semesters we have found that students who place into Math 180 (Calculus I) have significantly higher success rates than students who take the prerequisite course Math 121 (Precalculus) and students who place into Math 121 have significantly higher success rates than students who take the prerequisite Math 090 (Intermediate Algebra). While some differences are expected, we are lead to the conclusion that Math 121 and Math 090 are not preparing students well for subsequent courses. Reviewing the syllabi for these courses, one problem is clear. Both courses cover a great deal of material too rapidly for students to gain mastery.

Most universities in the state spread the material of Math 090 and 121 over three courses—Intermediate Algebra, College Algebra and Precalculus, where College Algebra is a credit-bearing course.¹ We believe that UIC should do the same. The material currently in Math 090 and 121 will be spread out over three semesters (details of the new distribution of materials are below). We expect this change to improve success rates in both these courses and subsequent courses. Our plan is that students currently placing into Math 121 will still place into Math 121, but roughly one third of the students currently placing into Math 090 will instead begin in the credit bearing Math 110, allowing them to begin in material more suited for them, and avoid noncredit bearing work.

Math 110 College Algebra will also allow us to handle the placement of transfer students and, in the future, students scoring high enough on the PARCC exam. Note that students scoring a 4 or 5 on the PARCC exam must be placed into a credit-bearing course.

The content will be divided amongst the courses as follows:

Math 090: Linear equations and inequalities, absolute values, linear graphs and modeling, systems of equations, functions, quadratic equations, exponents and polynomials, factoring, radicals and rational exponents

¹ UIUC is the exception. They have a credit bearing College Algebra course but no Intermediate Algebra course.

Math 110: Functions, composition and inverses, graphs and transformations, piece-wise functions, polynomial and rational equations and graphing, exponential functions, logarithms, graphs and applications of exponentials and logarithms, circles and brief introduction to Trigonometry

Math 121: Functions, graphs, exponentials and logarithms, radicals, complex numbers, trigonometry (circle and triangle approaches), trigonometric graphs and inverses, introduction to vectors

Note that a brief introduction to Trigonometry will be added to Math 110. This was done to help the transition to Precalculus, which covers Trigonometry in depth, but also allows us to use Math 110 as a prerequisite for Math 170 (Calculus for the Life Sciences), rather than the current prerequisite of Precalculus. We also plan to change the prerequisite for Stat 130 (Introduction to Statistics for the Life Sciences) to Math 110 or possibly Math 090. This needs further review.

Proposal 2: Introduction of co-requisite instruction in Math 090

Currently about 200 students each Fall do not meet the requirements for Math 090 and are placed in Math 075 (Beginning Algebra). Math 075 is an 8-week course. It is a prerequisite for Math 090 and for Math 118 (Mathematical Reasoning), which is a prerequisite for most quantitative social science courses. About 80% of the students starting in Math 075 intend to take Math 090. We propose placing these students directly in Math 090 but requiring them to also take an additional, new course, Math 089. Math 089 will be a one credit hour course meeting twice a week where students will have the opportunity to review that background material where they are deficient. The course will begin with a diagnostic, allowing the instructors to individualize study plans for students. It is likely that Math 089 will be taught in a blended format. Math 075 will still be offered but will only be intended for students who are intending to take Math 118, but not intending on taking Math 090.

If both proposals are implemented we expect that 300-400 students each Fall will begin one step closer to a credit bearing course.

Proposal 3: Adjustment to Credit Hours

Math 090 and 121 are currently 5 credit hour courses. We propose making Math 090, 110 and 121 into 4 credit hour courses. All courses will have 3 lectures and 2 discussion sections per week. This is consistent with recent changes in Math 180. It also means that students taking Math 090 and 089 will only be taking 5 total credit hours. Students currently placing into Math 075 have 3 (if they do not plan on taking 090) to 8 (075 + 090) hours in noncredit-bearing courses, and typically 2 semesters before reaching a credit-bearing course. Students placing into 090 have 5 hours of noncredit-bearing and one semester before reaching a credit-bearing course. This proposal would lower this to 3-5 hours and one semester for students currently placing into Math 075, and 0-4 hours for those currently placing into Math 090.

Future Stages

Once we have gained experience with the co-requisite sections in Math 090, we will consider adding co-requisite sections to Math 110 (College Algebra), Math 118 (Mathematical Reasoning),

and Stat 101 (Introduction to Statistics). These changes would mean even more students begin in credit-bearing courses and should lead to the eventual elimination of Math 075.

Expected Outcomes:

- We expect the students who take the co-requisite Math 089 in conjunction with Math 090 to show strong performance in all aspects of the coursework for Math 090. We expect the intensive instruction in Math 089 to also benefit these students in their future coursework.
- We expect students taking Math 090 (without the co-requisite 089) to have higher success and be better prepared for the following coursework.
- We expect the introduction of College Algebra, Math 110, to improve the rates of success for students in their following courses, including in particular Math 121. We also expect the number of students taking non-credit bearing courses to drop.

Project Management Deliverables:

- Project Management Plan
- Project Log
- Regular Status reports
- End-of-Project Report

Assumptions:

- We assume the explicit support of the project sponsor and the Office of Project Management for Student Success Initiatives.
- We assume the project participants and identified stakeholders have the time to accommodate this project in addition to their daily workload.
- We assume that regular status reports about the progress of the work will be shared with the campus.

Assessment Plan:

We will track the number of students in all of our courses and their success rates in each course. We will also track the progress of students through the various sequences of courses. We are tracking these numbers currently, as base line information before changes are implemented in the Fall of 2016, including courses that are not directly affected by these changes, such as Math 180, but do require the revised courses as prerequisites. Also, students in the co-requisite Math 089 course will be given a pre- and post-assessment. In addition, these students will be taking Math 090 with students that are not required to take the co-requisite, giving a great basis to compare their outcomes with students that currently meet the prerequisites. Math 089 students will be surveyed to obtain their opinion on the effectiveness of Math 089 and its format.

Monitoring and Control

Jenny Ross will over see the project and call regular meetings with the Project Team. Dave Marker, Associate Head, will lead the proposal and approval process with the college and other levels of review. He will then oversee the scheduling of the courses for Fall 2016. Jenny and Martina Bode will oversee the design and structure of the new courses, and their content and curriculum. Brooke Shipley will connect the team with appropriate contacts across disciplines and within the college in helping connect the team with funding opportunities for supplies and training.

Roles and Responsibilities

Role/Assigned Parties	List of Responsibilities
Provost and Vice Chancellor <ul style="list-style-type: none"> ● Barbara Henley, Vice Chancellor for Student Affairs ● Eric Gislason, Interim Vice Chancellor for Academic Affairs and Provost 	<ul style="list-style-type: none"> ● Ultimate authority and responsibility for the project scope, timeline, and budget ● Provide high level leadership for the entirety of the project and its needs/goals ● Assure availability of essential project resources
Student Success Initiative Implementation Management Team <ul style="list-style-type: none"> ● Linda Deanna, Associate Vice Chancellor and Dean of Students ● Emanuel Pollack, Interim Vice Provost for Undergraduate Affairs ● Tom Moss, Associate Vice Provost for Undergraduate Affairs ● Negar Mansourian-Hadavi, Project Manager 	<ul style="list-style-type: none"> ● Provide guidelines and support for the initiative and act as the liaison for the leadership, the project teams, and the campus ● Provide support for executive-level communications ● Assist in issue management by removing obstacles inhibiting the Project Team or its stakeholders from forward progress ● Ensure project objectives are being met, in collaboration with the Project Lead and/or Project Manager
Project Manager (s) <ul style="list-style-type: none"> ● Negar Mansourian-Hadavi, Project Manager 	<ul style="list-style-type: none"> ● Manage overall scope and schedule for the Initiative, including regular reporting and communication ● Work closely with the Management Team and the Project Leads to ensure the objectives are being met and issues are addressed ● Assure alignment of project steps for achieving the project outcomes

	<ul style="list-style-type: none"> • Dedicates time for initial training and continues to provide support for streamlining the process • Mitigate issues and risks • Own project management plan, and project documentation, including providing general support and project management framework to Project Lead • Make sure there are clear communication paths between all identified project roles • Updates the Students Success Initiative’s website with regular “status reports” of all projects.
<p>Project Sponsor(s)</p> <ul style="list-style-type: none"> • Emanuel Pollack, Interim Vice Provost for Undergraduate Affairs 	<ul style="list-style-type: none"> • Provides necessary support to ensure the progress of the project • Assures availability of essential resources for the project • Receives updates on the Project Team meetings and participate as needed • Responsible for executive-level communication of the project as applicable
<p>Project Team</p> <ul style="list-style-type: none"> • Brooke Shipley, MSCS Head • Dave Marker, MSCS Associate Head • Martina Bode, MSCS Director of Calculus 	<ul style="list-style-type: none"> • Carry out and responsible for daily project tasks • Create/contribute to project deliverables as applicable • Contribute to creation of project guidelines and procedures as well as regular project updates • Serve as first line of defense in issue and risk mitigation • Serve as liaisons and project advocate to all project stakeholders
<p>Project Lead</p> <ul style="list-style-type: none"> • Jenny Ross, MSCS Director of Developmental Math 	<ul style="list-style-type: none"> • Coordinates Project Team meetings and share updates • Serves as central point of communication for the project, with the sponsors, the team, and the project manager. • Oversees day-to-day operations of the Project Team • Co-manages key project documentation with Project Manager • Ensures project objectives are being met, in collaboration with the Management Team and/or Project Manager • Mitigate issues & risks; address problems as they arise, reaching out to available resources, including the project sponsor. • Support and execute project communications plan
<p>Project Assistant and/or Project Coordinator</p> <ul style="list-style-type: none"> • Eloy Reyes, MSCS Assistant to the Head 	<ul style="list-style-type: none"> • Support meeting coordination and project documentation, including meeting minutes, project management plan, or status reports,

Communication Plan

The following chart exhibits how the entire target audiences will be communicated using the tools, channels and roles that have been defined.

Tool	Purpose	Audience	Owner	Distributor/Channel	Frequency
Project Status Update	Provide status on project	Project Sponsor(s)/ Management Team/ Project Team	Project Lead	Project Lead / Email	Once per month
Actions and issues follow-up	Facilitate completing tasks and resolving issues	All Project Participants	Project Manager/ Project Lead	Project Lead and or Project Manager / Email & Phone Calls	As needed
The Initiative Status Report	A roll-up of the individual status reports designated to communicate Student Success Initiative progress status with the campus	The UIC Campus	Management Team / Project Manager	Campus mass email/ Student Success Initiative website	At least once per term

Change Process

Any proposed changes to the project described here should be submitted in writing to the Student Success Initiative management team.