

**Colorado Math Pathways Task Force Retreat
May 18-19, 2015**

Agenda

Monday, May 18, 10:00am – 5:00pm

Time	Topic	Facilitator
10:00 – 10:30	Brief History and Tour of the Grant-Humphrey’s Mansion (Lindsey McCutchan, History Colorado)	
10:30 – 12:00	<p>Lingering questions to be addressed by the full math task force:</p> <ul style="list-style-type: none"> • Should the recommendation for CalcPath include a position on the structure of prerequisite courses? • Should the recommendation for the StatPath include a position regarding a college-level prerequisite for statistics? • Discussion on the coherence of the QuanThink Path: <ul style="list-style-type: none"> ○ What is the purpose (in terms of programs served) of modeling vs. “math for liberal arts” courses? ○ How will programs distinguish between different options in this pathway? ○ Will diversity of courses in the pathway lead to problems for students in applying math credits to programs of study, especially when transferring between institutions? • CalcPath <ul style="list-style-type: none"> ▪ Recommendation is to have students who intend to take Calculus I do so in their first year, It’s highly recommended that students who intend to complete a major requiring calculus in four years complete Calculus I within their first 30 credit hours. <ul style="list-style-type: none"> ➤ May not work for every student ➤ Recommend that institutions develop structures that support students to meet the goal of completing Calculus I within their first 30 credits. ▪ Existing Options: <ol style="list-style-type: none"> 1) Go right into Calculus I 2) Take Pre-Calculus and then Calculus I 3) Follow the current sequence of College Algebra, Trigonometry, and Calculus I <p>Potential Options could include, but are not limited</p>	Amy

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	<p>to:</p> <ul style="list-style-type: none"> • Co-requisite instruction/support • Stretch courses (the risk here is transferring before completing the entire course) • Online support modules • Compressed/accelerated modules <ul style="list-style-type: none"> • StatPath <ul style="list-style-type: none"> ▪ Use the existing Intro to Statistics content ▪ Encouraging a modeling approach as well ▪ Students should be able to take Intro to Stats, without a credit-bearing pre-requisite, if they are college ready (that is, have completed remedial if needed, like MAT 050: Quantitative Literacy) ▪ For future examination/discussion: Address if CCCS should allow MAT 135: Intro to Stats to fulfill general AS degree requirements with the caveat that students be strongly advised that the course may not apply to all STEM majors and that the student may need an upper-division statistics course with the same name (Intro to Stats) for their baccalaureate program. ▪ Should make the lower-division syllabi/content and names of the courses significantly distinct from the upper-division courses, such as Statistical Thinking vs. Introduction to Statistical Methods). • QuanThinkingPath <ul style="list-style-type: none"> ▪ Courses include, but are not limited to, a new algebra-based modeling course and/or the existing Liberal Arts course ▪ Existing Liberal Arts course to be repackaged <ul style="list-style-type: none"> ➢ Emphasize using modeling and the topics currently on CCCNS site ➢ Less emphasis on appreciation of select topics ➢ Working group consider: <ul style="list-style-type: none"> ➢ MAT 050 as the developmental education path ➢ Meets the gtPathways/core gen ed requirement 	

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	<ul style="list-style-type: none"> ➤ Generally is a terminal math course ➤ Include some modeling? ➤ How to ensure rigor? <p><u>Ideals for the bulk of “Math for the Liberal Arts” type of courses:</u> Students, who are afraid of math, say “I learned something I can use.” Financial literacy, better consumers. Understanding numbers in the real world (like percents). Keep in mind instructors are selected at the last minute many times and have math background but may not have specific background in teaching math to students who usually are not strong in it.</p> <p><u>Amy’s summary:</u> Recommendation is that the Quantthink courses are designed to be rigorous, support problem solving and numerical and reasoning skills, and address the state competencies. Recommend content on statistics, algebraic modeling and reasoning, financial literacy. Additional topics may be included but recommend depth over breadth. In some cases courses may need to be designed for specific program needs.</p> <ul style="list-style-type: none"> • (Group, language this.) *Unique paths may exist based on intended major. The course(s) should be based on specific, content-related learning outcomes. This is a good discussion to have with the Math Department. For example: <ul style="list-style-type: none"> • Integrated Math I&II for ECE and EL ED path (e.g., MAT 155&156) • Architecture • Business 	
12:00 – 12:30	Get lunch	
12:30 – 1:30 will adjust time as needed	Continue previous discussion if needed. Plan for vetting: assign responsibilities, discuss presentation delivery	Amy or Dean?
1:30 –	Small groups work on refining recommendations; preparing	

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3:00 will adjust time as needed	powerpoints; practicing presentation	
3:00 – 3:15	Break	
3:15 – 5:00	Looking ahead at next phase: <ul style="list-style-type: none"> • Finalizing report • Next stages of work • On-going role of task force 	Amy
5:00 - ?	Gather at Ian's for social hour <ul style="list-style-type: none"> • Governor's Place condos, 800 Pearl St. Apt. 406. (1/2 block north of GH Mansion). Dial #033 in lobby to get buzzed in. Dinner at Racine's (on your dime) <ul style="list-style-type: none"> • 650 Sherman St, Denver, CO 80203 (walkable from Ian's. Leave your car at GH Mansion.) 	

Tuesday, May 19, 9:00am – 4:00pm

Time	Topic	Facilitator
6:00 – 8:30	Free breakfast at the hotel or on your own	
9:00 – 11:45	Transitioning to a state action plan <ul style="list-style-type: none"> • Working groups (recruit membership purposefully; Task Force members start thinking about who to invite to these; want key leaders we know will carry this forward; maybe Task Force members could chair and co-chair?) • QuanThink Path Group: <ol style="list-style-type: none"> 1. Modeling Course – start with Georgia's and Mesa's models for the course (need faculty designers who understand the needs of the students who'll be taking this course) 2. Math for the Liberal Arts - content and competencies • Statistics – can we differentiate the content between lower-div and upper-div stats so 	Amy

	<p>students aren't repeating same material? [would require collaboration with faculty in departments that teach stats, if not math dept.)</p> <ul style="list-style-type: none"> • Calculus Pathway- what's the best way to get students through Calc I within their first 30 credits? (co-req dev ed, SAI, accelerated model?) • Supporting Instruction & Learning – providing high quality, long term, sustainable professional development (based on best practices) to ensure appropriate instruction and active learning; identifying and (re)training appropriate instructors to teach the gateway courses; alternative structures to support pathways (SAI, accelerated, stretch, co-enrollment); resources and training for statistics staffing • Policy & Transfer Issues – might not need to be a group, it could be up to CDHE to implement; Integrative Math I&II for ECE and EEd teacher candidates; inconsistencies in transfer; Dwd math courses; CCHE Remedial Policy; examine if CCCS should allow Stats for math requirement in AS degree; ensure lower-div and upper-div stats are different enough from one another, clarify content/pre-reqs • Advising – find details on where/how/why advising is working or not working; mix advisors with faculty to ensure good decisions; get in on CCCS' annual advisor summits and 2- to 4- year advisor summits; CDHE Student Affairs summit; address structural issues; develop meta majors • Partner Discipline Collaboration – regular program review for appropriate math course in the major; (provost-type people [Academic Council?] weigh in on how this is/could be done); • Communication – canned PowerPoints and other informational resources; see Amy's pdf; • Communications and engagement • Ongoing Roll of Task Force: <p>1. TF should monitor and serve as a resource for</p>	
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	<p>the working groups.</p> <ol style="list-style-type: none"> 2. If any of the working groups come up with questions – Ian/Dean will collect those and give them to the TF to make the decision and give a qualified response. The TF is a “mostly” math faculty group who will look at the issues holistically instead of just to faculty at a particular institution. And the TF will make the executive decision about whatever this issue is. The TF role is also to review the proposed plans from the working groups and be able to give feedback from the more “big picture” perspective. 3. The TF should meet in Sept and Jan ish meetings and in Jan make a decision about need for more engagement. 4. Want the institutional diversity on the TF. We like having representation from the different schools. If anyone wants to step down we will find another rep from your college to take the place. 5. Keeping a number of us on the TF gives us the opportunity to have the big picture perspective and we already know what the goals are. 	
11:45 – 12:45	Lunch and final prep	
Guests arrive for vetting		
Time	Topic	Presenter
1:00 – 1:10	Introduction, context for math task force work nationally	Bruce Vandal
1:10 – 1:25	Background on Colorado work: process, key findings	TBD in May 18 planning
1:25 – 2:00	Presentation of 3 recommendations (approx. 6 minutes each, additional time for interspersed questions)	TBD in May 18 planning
2:00 – 2:45	<p>Targeted questions for the vettors – will be planned on May 18:</p> <ol style="list-style-type: none"> 1. What are the obstructions to having a full range of gateway courses at your institution? 2. What kinds of resources will be needed to implement recommendations? 3. How best communicate and coordinate with advisors and partner disciplines? 4. Are there state policies that could be issues to 	TBD in May 18 planning

	<p>implementation?</p> <p>5. Will program review idea work?</p> <p>Breakout Groups?:</p> <ol style="list-style-type: none"> 1. Advisors and K12 folks 2. Faculty on curriculum 3. Administrators? 	
2:45 – 3:00	Looking ahead at next year and wrap-up	TBD in May 18 planning
Guests leave		
3:15 – 4:00	<p>Debrief of vetting; next steps, wrap-up</p> <p>Advising</p> <ul style="list-style-type: none"> • Advisors need brief, clear information and explanation to help students make choices. • Advisors don't want to say "no" to students and limit their options but recognize the need to be honest about chances for success in a particular path. • They default to algebra because everyone accepts it. • High school students choose College Algebra, in part, because of "college" in the title. Re-name Stats to College Statistics and Math for Lib Arts to College Quantitative Thinking. • Lib arts courses vary from instructor to instructor and institution to institution. <p>Professional Development & Support</p> <ul style="list-style-type: none"> • Piggy back on conferences. Build a repository specific to Colorado. Regional workshops for faculty. • Where do AP and IB fit in with all this? • Liked idea of partner disciplines coordinating with math dept. Math faculty might request release time for doing this work. <p>Curriculum</p> <ul style="list-style-type: none"> • Deans from non-science colleges were interested in having the conversation about ensuring partner disciplines have appropriate math and learning outcomes. • DwD's might be difficult to change math. Math courses set at highest common denominator. Need to explore these. • Mary Pittman can find K12 folks to get 	Dean/Ian

	<p>involved.</p> <ul style="list-style-type: none">• Suggestion to ask partner disciplines if there are competencies or topics they want in a math course that are not currently offered.• CCs can't figure out why more students aren't taking Math for the Liberal Arts and Stats.• Point that we haven't addressed: alignment with career pathways.	
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