Appendix B: Content Review Conversation Starter

Based on the Course Outline of Record (COR), content review requires that faculty examine aspects of the course to learn where students need to come prepared with certain skills and knowledge sets rather than learn the skills while taking the course. Conversation-starter questions have been prepared to assist with the process of content review when faculty are reviewing a course and believe that certain basic skills are necessary for student success.

Element of the COR	English Composition	Mathematics	Reading
Course Objectives	Does the objective require the students to write clear, thesis driven writing assignments organized in academic form? Does the objective require students to incorporate or synthesize other texts in order to support the points made in their writing? Does the objective require the students to conduct research and include researched material in assignments? Does the objective require students to analyze quoted material and determine its relationship to the assertions in the essay? Does the objective require students to demonstrate competence in standard written English in terms of grammar, punctuation, and other conventions? Does the objective require correct documentation of sources in the citation form of the discipline?	Does the objective require students to be proficient with a calculator? Does the objective seem quantitatively based – will the student need to be competent in a range of mathematical skills in order to be successful? Do students need to be able to understand two or more variables ? Are systems of equations (linear or nonlinear) essential to meeting the objectives of the course? Are making and analyzing graphs integrated into the objectives? Linear graphs? Nonlinear graphs?	Does the objective require the students to complete college-level writing assignments based on written materials (textbooks, primary sources, secondary sources, etc.)? Does the objective require analysis of the credibility of the author(s) as expert in the topic under consideration? Does the student need the ability to analyze the audience, purpose, and tone of the text? Does the student need the ability to objectively summarize the text? Does the student need the ability to identify the thesis in the article and the main ideas in the sections of the text? Does the student need the ability to identify supporting evidence used to validate the assertion? Does the student need the ability to draw reasonable inferences from the text, inferences based on evidence offered? Does the student need the ability to determine bias and world view in the text based on the evidence provided? Does the objective require students to conduct research and include researched material in assignments based on written materials (textbooks, primary sources, secondary sources, etc.)?

Element of the COR	English Composition	Mathematics	Reading
Course Content	Do elements of the content link easily to general essay writing skills (i.e. grammatical competence, organized and clear written communication, use of evidence.)? Do elements of the content implicitly require higher level writing and thinking skills such as synthesis of ideas and researching? Does the course require specific writing skills or a specific type of writing, or is an overall background required?	Are elements of the content easy to link to math skills (i.e. finding percentages, graphing, calculating certain quantities.)? Are elements of the content implicit about math skills that students need (have the discipline faculty explain what is going on)? Are specific skills necessary or an overall background? Can the skills be isolated? Can the discipline faculty teach the concept? Can a math faculty visit the course for one hour or day to teach it?	Do elements of the content link easily and explicitly to reading skills (i.e. understand and paraphrase main ideas; identify and learn supporting details; summarize college-level written texts)? Do elements of the content implicitly require college level reading skills (research of written texts, essays based on reading assignments; broad detailed mastery of textbook information; analysis, integration, and synthesis of multiple written materials, even if texts are below college-level; understand and apply theories, concepts and critical analyses of college-level reading? Does the course require: specific reading skills determined by test or assignment purpose? A specific type of text? Or an overall experience in reading college-level texts?
Methods of Evaluation	Students must express their understanding of the course content through college-level, academic writing assignments. Students must express their understanding through in-class writing such as essay exams. Students must know how to locate outside resources relevant to the course content, document their research properly, and incorporate that research into their writing clearly and effectively.	Students must know how to complete certain calculations using a calculator on exams. Students need to interpret graphs, make graphs on tests or in reports, organize data, report data. Students have equations to solve on tests, quizzes, or other assignments: linear equations? Nonlinear equations?	Students must express their understanding of the course content through college-level, academic writing assignments based on written materials (textbooks, primary sources, secondary sources, etc.) Students must know how to locate outside resources relevant to the course content (determining a source's relevance is linked to a sophisticated reading level.) Research papers, essays Bibliographies

Element of the COR	English Composition	Mathematics	Reading
Assignments	Essays Research papers Essay exams Bibliographies or other research assignments	Conducting elementary research. Reporting results of surveys, lab tests, etc. Producing quantitative information in graph, numerical or paragraph form. Homework exercises include quantitative problem solving, applications or word problems.	Expected types and levels of reading materials outside of class.
Required Texts and Other Instructional Materials			College-level textbook College-level primary print sources (journal articles, etc.) Primary and secondary print sources not at the college-level, but critical analysis is required.
Other	What level of critical thinking is expected? Grading criteria Syllabi	What level of critical thinking is expected? Grading criteria Syllabi	What level of critical thinking is expected? Grading criteria Syllabi

Appendix C: CB 21 Transfer Level Freshman Composition Rubric

Final English Writing Rubric							
English	Writing Assignments	Reading	Voice Audience	Organization Development, and Thesis/ Central idea	Sentences and Vocabulary	Mechanics and Grammar	Resources
CB21 – B 2 levels prior to transfer	Write coherent essays and paragraphs, about course readings and/or other subjects. Demonstrate the ability to summarize, analyze and make a simple synthesis between two readings or ideas. Complete in-class writings that demonstrate some organizing, composing, revising, editing & time management skills.	Read, identify, and summarize short expository texts for the purposes of writing and discussion. Distinguish between fact and opinion, identify author's purpose and recognize author's tone.	Direct writings to a specific audience using a fairly consistent voice.	Construct writings with a central idea and paragraphs that support it. Write paragraphs with supporting sentences that relate to the topic sentence.	Recognize and begin to apply sentence variety and appropriate word choice. Demonstrate an awareness of and emerging competence with vocabulary strategies.	Proofread and edit their essays for public presentation. Identify some errors in English grammar, usage, or punctuation.	Use some outside sources and begin to use quotes to attribute those sources. Differentiate between one's own ideas and those of others.
CB21 – C 3 levels prior to transfer	Write short, topic-based papers with a main idea. Write guided in-class assignments based on a variety of prompts that attempt to organize, compose, revise and edit.	Read relevant texts and learn to respond in writing with clarity and commitment. Identify the author's purpose and conclusions. Express personal opinions about texts.	Direct writings to an audience considering voice.	State a topic and use details to support a central idea.	Apply basic sentence variety. Recognize the importance of accurate word choice. Distinguish between standard American English and vernacular.	Identify basic errors in English grammar, usage, or punctuation. Construct writings w/ mostly effective sentence structure.	Use a variety of outside sources.
CB21 – Y 4 levels prior to transfer	Write short, topic-based assignments with a main idea. Write guided in-class assignments.	Read, identify, summarize & restate the main idea of the text in writing. Identify the author's write for different purposes with guided assistance from the instructor. Express personal opinions about reading.	Demonstrate the use of a writing voice.	Use details to support a central idea.	Recognize and imitate basic sentence models. Use familiar vocabulary correctly. Identify slang.	Write grammatically correct simple sentences.	Identify a variety of outside sources.

Appendix D: Content Review for Computational Prerequisite for Geology Lab

Example of How to Begin Content Review for Computational Prerequisite

Faculty teaching a transfer lab course in geology believe that students need mathematics skills and knowledge in order to be successful in the course.

Catalog Description:

Provides hands-on experience to accompany and augment Geology XXX. This course will include laboratory and field investigations of the Earth, emphasizing experience with minerals, rocks, and fossils, as well as topographic and geologic maps. Field trips will acquaint students with local rock units, and past and present geologic processes.

Course Objectives:

The student will:

a. Compare and contrast common minerals, and rock types, in hand specimen.

b. Analyze basic geographic parameters of topographic maps: projections, location grids, and elevation indicators.

c. Construct and interpret topographic maps.

d. Assess the forces which produce the various types of folds, faults, and unconformities as they appear on maps, photos, and in the field.

e. Construct 3-D interpretive diagrams of geologic structure from primary information.

f. Construct the geologic history of an area when provided with a geologic map/cross-section/stratigraphic column.

g. Appraise the general geology of a specific area or region through analysis of appropriate photos, maps, and/or field observations.

Course Content:

a. Earth Materials: Minerals and rocks. Class time will be spent learning to sight identify approximately 40 minerals and 40 rocks by learning the combination of important characteristics of each specimen.

b. Topographic Maps: Students will learn to correctly read symbolic devices for depicting elevations, locations, scale factor, cultural features, and other aspects of United States Geological Survey topographic maps. Students will also draw simple topo maps using raw data.

c. Fossils: Students may have one opportunity to identify common representatives from each major fossil phylum and class and relate them to the geologic time scale.

d. Structure and Geologic Maps: Students will learn the common deformation patterns in crustal rocks by drawing examples of each. They will then learn to write a chronological list of geological events for a specific area, given appropriate supporting cross-sections, maps and/or field observations.

e. Landscape Interpretation: With skills as developed above, students will go on to analyze the geology of specific earthly regions, both above and below sea level, as shown on appropriate maps.

f. Field trips to local areas of geologic interest.

Methods of Evaluation:

a. Grading of laboratory exercises

b. Quizzes over each unit

c. Final exam: May include objective and essay questions, and/or construction and interpretation of a geologic diagram

The faculty in the department determine the following mathematical skills and knowledge which students must have before enrolling in the course:

1. Unit conversions

2. Percent

3. Fractions, ratios, and operations on fractions

4. Grid systems (essentially graphing skills)

5. Slope calculation

6. Protractor and compass skills, degrees, angle measurement

7. 3-dimensional geometry, intersection of 3-D shapes, construction of 3-D models and 2-D diagrams from the models

8. Calculator may be used (even a cell phone calculator) but is not required

The required math skills as identified by the department are listed from simplest to more advanced, and not all the skills are found in a single math course. What is represented is a collection of knowledge that a student would obtain by taking a complete high school sequence of courses (Beginning Algebra, Geometry, Intermediate Algebra) plus some advanced knowledge of three dimensions.

In trying to determine if a prerequisite is required or which course might best fit the needs of the department, there are many issues to consider.

Linking the entrance skills to the course outline – There is little in the course description, objectives, content, or other features of the course outline to indicate these are the necessary skills. Does that mean that the skills are unnecessary? No, not necessarily. The expertise of the faculty and concurrence of the department indicate that these skills are necessary for success. Should the entrance skills be included in the course outline? Yes. By

including the entrance skills on the course outline of record, faculty expertise is validated when the curriculum process approves the course outline and the college owns the expectations for student success.

Prioritizing the entrance skills – Since not all the entrance skills fall neatly into a single course but instead represent a collection of knowledge and critical thinking abilities, the department may want to prioritize which of the skills are necessary to be learned in a prerequisite course. The advanced skills (3-D and 2-D modeling and diagrams) may need to be taught by the geology instructors, and the use of protractors and compasses may also need to be taught by the geology faculty. However, the math faculty may find a way to offer a workshop for science students on how to use these tools successfully.

How to determine if a prerequisite is necessary – Now that the department has prioritized the entrance skills, matching them to the exit skills of a math course comes next. Matching should be accomplished through a discussion between the geology and math faculty. The skills listed by the geology department are typically found in the exit skills or course objectives from a Prealgebra course (aside from the protractor and compass skills and the 2-D and 3-D modeling). If the geology faculty want to list Prealgebra as the prerequisite course, math faculty might disagree and suggest that the Beginning Algebra, the course after Prealgebra, is the better choice. Why? Because a student only needs to know 70% of the exit skills in Prealgebra to pass the course, so completion of the next course would give the student a greater chance to master these entrance skills. It is rare that a student just passing a course has mastered the content sufficiently to apply it outside the discipline in another course. However, in an effort to keep courses open to as many students as might succeed, perhaps the two sets of faculty need to have a longer conversation about alternative ways to help students be prepared.

Finding prerequisites for transfer level courses – All students taking courses at the universities have demonstrated certain skills and knowledge by completing "a-g" requirements in high school. They bring to the universities a collection of critical thinking skills that they can apply to any course taken freshman year at the university. If community college transfer courses are equivalent to the university level courses, then it could be argued that students need to have this same combination of skills and knowledge from English and mathematics courses in order to be successful. A further consideration is regarding articulation. Say the geology faculty and the curriculum committee determine that Prealgebra is the prerequisite for the transfer geology lab course. Is the articulation of the course in jeopardy because of the low level of expected skills and knowledge needed to be successful? Does such a low prerequisite challenge the level of rigor at which the course is taught?

Recency of acquiring prerequisite skills – Many students studied the skills that the geology faculty have listed, but they learned the skills several years ago. The students may not have done any unit conversions in recent years making it difficult for them to adequately recall how to do this specific task. What kind of recency requirements will the geology faculty want to include as part of the prerequisite? New Title 5 regulations (§55040.b.3 and §55043.a.1), allow for repetition of courses because of significant lapse of time which might include a prerequisite course called a "recency prerequisite." Curriculum committees must determine how to assign recency prerequisites by listing criteria such as courses to which recency applies, number of years lapse, and any alternate ways in which students can be refreshed in the skills and knowledge necessary.

Appendix E: Resources

Prerequisite Training to be provided by the Chancellor's Office and the Academic Senate

The resources that follow were provided to the Board of Governors in support of the recent changes in the Title 5 section pertaining to prerequisites. As they are likely to be useful to local colleges as they review their prerequisite polices, they are included here.

There has been longstanding agreement within the Academic Senate Executive Committee and the Prerequisite Task Force (which includes representatives from the statewide bodies represent-ing the chief executive officers, , chief instructional officers, , chief student services officers, Re-search and Planning Group, and the Student Senate) that training on the use of content review should be provided before local curriculum committees establish cross-disciplinary prerequisites. This training would take place in two stages:

Training to be provided by the Chancellor's Office and the Academic Senate: The Chancellor's Office and **the Academic Senate** should provide annual training on the use of content review.

There is already a working model for this in the training currently provided by the Chancellor's Office for compliance with Education Code §70901, §70902 and Title 5 §55000, 55002, 55006, 55070, 55100, and 55130 for Stand Alone Training. This training is provided annually as part of the Academic Senate's annual Curriculum Institute and it is supplemented by webinar trainings for those colleges unable to send representatives to the Curriculum Institute. The training includes the text of relevant statute and regulatory language and a PowerPoint presentation elaborating on several of the more important details in law and regulation.

Following a "train-the-trainer" model and using materials made available at the Curriculum Institute, local curriculum committee chairs (and other administrators and faculty who receive training at the Curriculum Institute) return to their campuses in the fall and provide training locally.

Additional Training Provided by the Academic Senate

In addition to organizing the annual Curriculum Institute, the Academic Senate organizes two plenary sessions and other conferences during the academic year. The Academic Senate commits to including sessions on content review, addressing implementation and enrollment management questions, and developing the tools necessary to evaluate the effect of prerequisites, with special attention to disproportionate impact. The Academic Senate will develop additional resources, including examples of effective practices, to guide the work of colleges.

FAQs: Enrollment Management & Student Options

It has been clear from the earliest conversations that the most challenging part of establishing prerequisites will be the way in which they are phased in. Too gradual or narrow a phase-in is likely to result is students enrolling in other classes. A too aggressive implementation will shift an unmanageable level of student demand to basic skills and unrestricted course sections. Here are some questions colleges should ask as part of the development of their local plan for applying prerequisites based on content review.

Q: What level of commitment to basic skills course offerings exists in the system at present?

A: The variation is enormous. According to data reviewed by the System Advisory Committee on Curriculum (SACC), students enrolled in a basic skills class ranges from 4.8% to 57.4%. Because of this vast range in existing commitment to basic skills, it is impossible to mandate that colleges commit a *predetermined* percentage or number of sections to new basic skills course sections. Nevertheless, it is evident that in the short run, many colleges will need to add basic skills course sections.

Q: What information should be gathered before colleges establish new prerequisites?

A: Colleges should collect data on student success and retention in high demand transferable courses, disaggregated by ethnicity. Colleges should focus on those courses in which the success rates are low. Some of this information is available via Datamart (*http://www.cccco.edu/SystemOffice/Divisions/TechResearchInfo/MIS/DataMartandReports/tabid/282/Default.aspx*), though it is aggregate by discipline and not available on a course-by-course basis.

Q: What questions should colleges ask about those courses?

A: Once colleges have identified courses with low success rates, research should conduct two kinds of research.

(1) Colleges should conduct a *qualitative* review of the existing course outlines and see if they require skills for which a basic skills prerequisite might be warranted.

(2) Colleges should conduct *quantitative* research to determine the numbers of students taking these classes who would already meet prerequisites. Colleges with little flexibility to add or shift course sections could establish prerequisites in courses which enroll a smaller number of students who would need to be accommodated in other classes. Colleges with greater flexibility to add or shift sections might look at classes with lower rates of student preparation, knowing that they will need to provide increased access to basic skills course sections.

Q: Won't new prerequisites trap underrepresented students out of classes altogether?

A: No. Virtually all colleges in the state use a computer-based priority enrollment method for enrolling students in classes. While the criteria for determining a student's enrollment priority varies, a student who seeks to enroll in a class for which there is a prerequisite should still have access to both basic skills sections and to other non-restricted transferable courses. It is the students with the latest enrollment time slot who are at risk, but that is the result of reductions in funding and other factors, not prerequisites.