**Science/Math Division**

**Brown Bag 4/8/15**

**Current CAPP proposal for Science and Math**

**Natural Sciences**

*The methods of the Natural Sciences provide a distinctive and efficacious path to understanding the natural world. Informed citizen engagement with critical challenges posed by technology, modern medicine, environmental problems, etc. demands an understanding of the way natural sciences work.*

Each student earns at least one credit in a laboratory course that has as a major component the scientific investigation of the natural world. The laboratory work will emphasize the role of experiment and observation in the formulation and testing of scientific hypotheses.

**Mathematical and Logical Reasoning**

*Logic and mathematics are among the most powerful tools the human mind has devised for comprehending and interacting with the world. Students engaged in their study learn foundational critical thinking skills. They develop habits of rigorous thought that empower them to engage in sound analyses of questions amenable to the tools of logic and mathematics throughout their lives.*

Each student earns at least one credit in courses that develop the capacity for logical reasoning through the exploration of techniques in mathematical reasoning, computational reasoning, or reasoning with formal languages. A major component of these courses is the practice of such techniques.

Potential options:

* We can endorse this as a division
* We can offer suggested wording or implementation changes as a division (or as individuals)
* We can take a divisional straw poll and present this information to our colleagues, prior to or at the May Faculty Meeting
* We can reject this proposal as a division, offering an explanatory rationale and proposing an alternative
* We can just vote individually on the proposal at the May Faculty Meeting

One suggestion that arose in the Science and Math Liaison group’s last meeting:

Each student will complete one course credit in a Natural and Behavioral Science (S) class and a Mathematical and Logical Reasoning (M) class, with one class having a designated laboratory experience. If a course is designated as SM, either requirement can be met.

**Natural and Behavioral Sciences**

*The methods of the Natural and Behavioral Sciences provide a distinctive and efficacious path to understanding the natural world, utilizing methods that differ from other ways of knowing. Informed citizen engagement with critical challenges posed by technology, modern medicine, environmental problems, etc. demands an understanding of the way scientists work.*

Upon completion of the Science general education course (S), the student will be able to:

* Appreciate the difference between scientific and other ways of knowing, recognizing both the strengths and limitations of the scientific approach
* Understand methods of inquiry that lead to scientific knowledge: experimentation, observation, and scientific reasoning
* Understand how elements of research design impact scientific findings/conclusions
* Identify a valid scientific source and argument
* Evaluate the use and misuse of scientific information
* Apply the scientific approach to content in a particular discipline

**Mathematical and Logical Reasoning**

*Mathematics and logic are among the most powerful tools the human mind has devised for comprehending and interacting with the world. Students engaged in their study learn foundational critical thinking skills. They develop habits of rigorous thought that empower them to engage in sound analyses of questions amenable to the tools of logic and mathematics throughout their lives.*

Upon completion of the Mathematical and Logical Reasoning general education course (M), the student will be able to:

* Solve problems using quantitative and logical reasoning skills
* Understand and interpret basic statistics (e.g., interpret error bars, understand the need for statistics)
* Justify inferences, predictions, and conclusions based on quantitative data
* Read and interpret graphical representations of data

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**Natural and Behavioral Sciences**

*The methods of the Natural and Behavioral Sciences provide a distinctive and efficacious path to understanding the natural world, and differ from other ways of knowing. how science uses methods that differ from other ways of knowing (although both of these seem redundant with the existing statement about science being “distinctive”). Informed citizen engagement with critical challenges posed by technology, modern medicine, environmental problems, etc. demands an understanding of the way scientists work.*

Upon completion of the Science general education course (S), the student will be able to:

(I think you’re right and we probably don’t need the parenthetical info)

* Understand methods of inquiry through experimentation, observation and scientific reasoning that lead to scientific knowledge
* Understand how elements of research design impact scientific findings/conclusions (e.g., identify strengths and weaknesses in research related to bias, sample size, randomization, experimental control, graphical representation) **OR**
* Appreciate the difference between scientific and other ways of knowing, recognizing both the strengths and limitations of the scientific approach
* Evaluate the use and misuse of scientific information (e.g., recognize a valid scientific course of action, distinguish the appropriate use of science to make societal decisions)
* Identify a valid scientific source and argument
* Read, summarize, and critique primary scientific sources at a basic level (could this go with “Identify a valid….”

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