SM liaisons meeting notes

October 9, 2015

Present: Steven Bogaerts, Bridget Gourley, Mary Kertzman, Rich Martoglio, Pam Propsom, Jackie Roberts, Henning Schneider, Fred Soster, Brian Wright

Individuals reported on their departmental discussion regarding the Four Pillars SM proposal (most also sent hard copy summaries; attached at the end of this document).

Biology—No great enthusiasm one way or the other. Concerns about staffing labs.

Chemistry/Biochemistry—Used it as a platform for discussion of what they would want the SM requirement to be. Lab is a good practice, but unsure whether a lab requirement is necessary. What does a “strong” SM requirement mean? No consensus. Make sure Q is involved in the conversation.

Computer Science—Supportive of the idea in theory, but think it would be hard to sell. Staffing might be a concern. What would it mean for Q? Not sure what we mean by a lab requirement; what is the goal of a lab?

Geoscience—Hell of a lotta support in Geoscience. They talked about the CS part of the model (math and computer science, econ doesn’t really fit in some ways). Tackle one thing at a time, and then deal with Q. Will Curriculum Committee deal with Q at some point?

Kinesiology—No major objections to it. Would be on-board with lab, but would there be enough seats. Staffing in math and CS. Concerned about students who need courses for prereqs—will other demand force them out? Will this change really going to change students’ scientific literacy? Do we need to design courses to do this?

Math—Naima wasn’t present, but she had sent a written document that Pam summarized. Math has concerns about student readiness for and interest in their 100-level courses. They tend to believe that it’s not a good idea to have a specific Math gen ed requirement for all our students, for the reasons above and in terms of the staffing reality. They do think that Math 141 (Stats for Professionals) is a good Math gen ed course.

Physics/Astronomy—Had a really long discussion about this. Talked a lot about Q, would like an enhanced Q experience (similar to attention that’s been given to W). They liked old paradigm where more students took Univ 101 for a common background. Population of students taking these gen ed courses versus those taking the SM major courses. What might be an ideal lab experience for a major might not be the same as one for a gen ed student. Does everyone *want* to teach a gen ed course? Not as tied to the idea of a lab requirement; removing the division between lab vs. class. Remove the “double-dipping” (getting SM and Q requirement met with same class).

Psychology—The Psychology department generally agrees that DePauw’s general education requirements are “light,” although at least one faculty member was in favor of giving students greater flexibility to take courses they’re truly interested in. We questioned how realistic is it that each curricular area will get a 3-course requirement, or that SM will get it and others won’t? If we only get 2, what would we want them to be?

Division in the Four Pillars proposal between Life and Physical Science seems somewhat arbitrary or unimportant. We do believe that it is important that whatever courses meet the requirement address the scientific method/process. Not so much an issue of the structure of groups.

Same issue with lab: what is a lab? Some felt the lab requirement is important because it is a way of thinking students won’t get in other curricular areas.

We had a discussion with Rich about Q. What does Q mean? Includes critical thinking and formal reasoning. We seem to be using the term “numeracy” more—about much less abstract concepts, skills we might need to use everyday as a citizen, develop as a problem-solver. Lots of people use the terms interchangeably.

Rich—Is it just SM’s responsibility to direct Q skills? He would like the entire university take responsibility. CAPP’s proposal last year essentially made Q obsolete. If this were the case, would this stop student exploration and pedagogical creativity in other divisions? Wants faculty across the university to contribute. Since the university is currently W-centered, he is starting to focus on writing about quantitative issues. Would like to have students take more than a single Q course. It’s such a big umbrella that it’s impossible for a student to get them all aspects of Q in a single course. Ideally these skills are transferable, used for problem-solving. He really likes Univ 101; a lot of students can really benefit from it.

What about the “no double-dipping” idea from Physics? Rich kind of likes it.

How do we decide if courses “meet these requirements,” whatever those requirements might be? Maybe using a criterion that that Ken Kirkpatrick suggested for determining transfer credit—for example, does the course address 80% of the goals?

Sounds like we would like three divisional learning goals: two from TOSLS and one new one from Math and Computer Science, but could involve other departments: a revised way to look at Q. Keeps two courses in the sciences then and maybe that would increase the likelihood that all the goals would be met. Courses could have multiple designations, but students would choose which one to count a course as.

1. Understand methods of inquiry that lead to scientific knowledge

2. Organize, analyze, and interpret quantitative data and scientific information

3. Quantitative Literacy—with new language, would include math, CS, and courses from other departments.

How do we evaluate whether courses would count, ensure “coverage” of skills? Used to have to fill out a form for MAO (still have to, but generally only the first time the course if offered). As a curricular area, we could propose something like this.

Mary--What about testing students when they come in: if they’re already strong in Writing, they take a Q-focused FYS. If they’re already strong in Q, they take a writing-focused FYS. What if they’re weak in both? There’s still Univ 101 and Eng 120.

Fred—Too messy to have students decide how to count a course (for SM or Q); have the faculty member decide. However, the new requirement adopted by the faculty last year is already going to make things messy because students can decide whether to count a course as SS or Power/Privilege/Diversity.

Bridget suggested getting OIR data on how many students are graduating with “double-dipping”—i.e., only reason they got a Q was with an SM course. Might this help make a good argument to colleagues in other areas for improving/increasing our SM requirement?

How much resistance would there be from your SM colleagues if we proposed courses having to meet these scientific literacy goals before they were “approved” as an SM gen ed course. Some departments felt their faculty members would be fairly compliant; others felt there would be resistance. Some thought that this would be a good exercise; others were more skeptical--What would really change? Would people try to game the system? Would anyone really deny courses?

Conclusion seemed to be: Approach this in terms of *encouraging* departments/faculty members rather than *enforcement*. And working with *individual faculty members* rather than through departments so we don’t require whole scale departmental buy-in before we can move forward.

Next steps—Maybe asking “Given these goals on which we have some consensus, for the courses in your department that count for SM, survey on whether the goals are being met and provide an example of how they do it.” Courses that have labs—do they accomplish these goals better? Might get a better response if we present this as a data-gathering exercise rather than some sort of enforcement. This is the exercise Michael Roberts and the Paradigm Shifts group engaged in when designing their modules. Maybe this doesn’t need to be done on the departmental level, but individual faculty member level when preparing a course. Try it, as an exercise. Still an issue of balancing content and the skills. Find out as a division where we’re weak rather putting it in terms of what a faculty member may be weak in. As you do this exercise, what things did you find that you value in your course but weren’t on the list?

Jackie asked Rich if he might be able to work with Math and Computer Science to develop some language for the third Quantitative Literacy goal.

Topic for Brown Bag—Could we have a discussion of this or have a department do it, or ask Michael to share the process? Maybe we change the day/date of the next Brown Bag to accommodate Michael’s schedule.

**SM Department responses to “Four Pillars” proposal**

**Biology (Henning)**

We had a brief discussion. Overall, there were no objections to the model in general but the response was not enthusiastic. Concerns were expressed that the Bio department cannot staff the current model because of labs, as far as I understand.

**Chemistry/Biochemistry (Bridget)**

**Computer Science (Steven)**

In Attendance: Doug Harms, Maria Schwartzman, Brian Howard, Scott Thede, Steve Bogaerts, Gloria Townsend, Khadija Stewart

***Do we believe this would offer DePauw students a stronger SM gen ed requirement?***

Yes - in an ideal world, this would be great.

***Could our department staff it?***

It’s hard to know definitively without knowing exactly what courses from other departments would fall in the CS category. We currently serve nearly 180 students (6 sections) per year in our CSC 121 Computer Science I course. We can’t cover more with current staffing levels.  Would there be enough courses in other departments in the “CS” category to cover the rest?

We really wondered if staffing would be a major problem in some of the other categories.

***How might you change it***?

Maybe “computational science” isn’t the ideal term, if the math faculty feel it might not be sufficiently inclusive.

***What are problems that you see?***

The biggest concern is just getting something like this passed. There was significant skepticism that faculty outside the division would receive it well. Some wondered if other divisions would want three courses in their area as well, which would lead to a much larger gen ed program. Though we do note that some departments outside our division are potentially included in the “CS” category.

We talked about the possibility of making this more palatable to faculty outside the division by simultaneously removing the Q requirement. That way it wouldn’t quite be a 1-course increase in the requirement. But since Q can be met at the same time as SM (for example) due to double-counting, in reality it is still an increase. Proposing the removal of Q may also bring more resistance, in fact, and would require special care to not do harm to that program’s benefits.

We should also note that this approach would kind of eliminate Q by default, since presumably everything in the “CS” category would be Q as well.

Otherwise it just seemed extremely unlikely that anything like this would ever pass a faculty vote.

There was also concern that the current Paradigm Shifts course wouldn’t fit in any of these categories. That is, these categories might almost discourage this kind of innovative, interdisciplinary course development.

Some students could meet this requirement with only one “traditional science” course. We don’t have strong feelings about how much of a problem this would be, but it’s important to note.

Students could also avoid the math department entirely, which may be an issue, but again we had no particularly strong feelings either way.

We did wonder about the possibility of just requiring 2 of the 3 categories, of each student’s choosing, rather than all three. This would seem much more likely to pass, at least. Students could still work the system to avoid certain types of courses, but perhaps it’d at least be no worse than now. Would it be a little better than now?

-----

***A Lab Requirement?***

We also took the opportunity to discuss the question of whether the CS1 lab should “count” if there is a lab requirement in any new proposal. We’re not comfortable making a full statement on that now, but we do have a question: what is the purpose of a lab? We know this has been a topic of recent discussion.

Clearly labs are very useful - crucial, even - in certain courses. They provide an opportunity to do something that wouldn’t be possible to assign as homework, for reasons of safety and/or equipment access. But of course “do something dangerous” and “work with special equipment” are not gen-ed goals. These characteristics are arguments for why labs are *useful* in certain courses, but not why they should be *required* for all students.

In our attempt to determine for ourselves why a gen-ed lab requirement may be a good idea, we really only came to the idea of “hands-on” work.

To draw a parallel: We want all students to *participate* in their classes. But we don’t mandate in the gen-ed requirements that all students must take a class that uses clickers, or A-B-C-D cards. To do so would be to overlook the many other pedagogical tools faculty can choose to facilitate student participation, adapting as appropriate to their individual classes.

In the same way, we want all students to have *hands-on experiences* in their classes. Labs are certainly one useful pedagogical tool for accomplishing that - in some courses more than others. But to say that “labs give hands-on experiences, so labs should be required” overlooks the many other pedagogical tools that can also provide hands-on experiences.

So in our view the goal of hands-on experiences does not necessitate a lab requirement.

We should also note that labs give hands-on experiences that at times are experiences in the *scientific method*. But perhaps not always - are labs sometimes more about following a sequence of steps precisely? And can the scientific method be explored in a hands-on way only through a separate lab experience, or can it sometimes be done in class? Or in an out-of-class project? So it seems both that not all labs are hands-on scientific method experiences, and not all hands-on scientific method experiences are labs. Thus we are also uncertain about pointing to a goal about the scientific method as justification for a lab requirement.

These are the incompletely-informed opinions we developed in our discussion about a lab requirement, and so we are requesting more information. Perhaps this discussion was premature, as a lab requirement hasn’t been proposed yet, but we figured it would happen at some point. So, what would be the purpose of a lab requirement? When we know this purpose, we will be able to consider whether or not we think the CS1 lab should count for such a requirement.

**Geoscience (Fred)--**My department discussed your questions today about the Four Pillars.  We feel that this would significantly strengthen the SM requirement. We can easily staff this.  The change we would prefer is to get economics out of the CS experience.  There are some stats courses in various departments that could count for this and at least one geoscience course (Intro to GIS) in addition to math and computer science courses.  In terms of wrapping Q into the CS experience, we are ambivalent at this point.  We feel that getting a three course requirement is more important than tackling Q simultaneously.   We can deal with Q later.

**Kinesiology (Brian)**

1. Do you believe this would offer DePauw students a stronger SM gen ed ?

* Not necessarily.
* Possibly

2. Could your department staff it?

* We obviously would have the KINS100 course.
* With a 4th faculty member coming it is possible we would have more offerings in this course.

3. How might you change it?

* Is it possible that we might need course(s) that are more specific in their goals regarding trying to accomplish this task of “scientific literacy” with non-science students.
* If there are currently difficulties doing this, how might going from 2 to 3 classes change this?
* Possibly the paradigm shifts course is addressing this issue. Maybe we need to consider designing courses that target these goals.

4. What are any problems that you see?

* How might this influence the load on other departments?
* Is a lab is mandatory, are there enough seats in the lab classes?
* How would this influence students who are trying to get into classes for pre-requisites for program beyond DePauw?
* We felt students need to be able to answer problems. This inevitably means learning the “skills” to do so. The content could essentially be in any of the disciplines, but do all disciplines have current courses to do this?
* Are there enough resources in Math/CS to meet this demand?

**Math (Naima)--**Unlike other DePauw classes, most of our 100-level math classes are very large, about 30 students in each section, and when it comes to our student’s performance, there is cause for concern. Most of them are placed in those classes because of their graduation requirement, not because they love critical thinking and problem solving. When asked whether c/3 or c/5 was greater, less than 50% answered correctly, or when asked to simplify an algebraic fraction after spending whole hour working on those problems, only 30% answered it right. Considering this reality, we do not require all DePauw students enroll a mathematics class. Moreover, we are already running large classes and we will be short of stuffing if offer more 100-level classes. However, we believe our Math 141 is appropriate for general education.

**Physics/Astronomy (Mary)**

***Do we believe this would offer DePauw students a stronger SM gen ed requirement?***

Yes

***Could our department staff it?***

Probably. We have a tradition of offering gen-ed science courses.

***How might you change it***?

We would like an enhanced Q experience over what we currently have; it’s not clear how Q is handled in the “Four Pillars” model. We would remove the “double dipping” option in our current system so a single course could not fulfill both Q and the SM requirements.

Undecided about the lab requirement.

***What are problems that you see?***

Staffing in some departments

***General comments that came out of our discussion***

Need more consideration of the goals of a lab course for non-science majors

More integration of the Q experience …we would like to see every (or almost every) student take something like Univ 101. Would like to see an overall enhancement of Q (much like the recent growth of W).

Assess the current state of gen ed science: How do existing gen ed courses fit? Do we need to inventory our existing gen ed offerings? Do all departments want to offer gen ed courses? How may faculty in each department has taught gen ed science? Are all faculty aware of the general level/background of the non-science student?

How does the Paradigm Shift course fit? What about other interdisciplinary courses?

**Psych (Pam)--** We generally think DPU’s current gen ed requirements are “light.” Makes sense to think about having a student’s curriculum divided into thirds: 1/3 major, 1/3 gen ed, 1/3 electives. At least one person thought it was better to allow students greater flexibility so they can take courses they’re truly interested in.

How realistic is it that each curricular area will get a 3-course requirement, or that SM will get it and others won’t?

If we only get 2, what would we want them to be?

Division between Life and Physical Science seems somewhat arbitrary or unimportant.

Important that whatever courses meet the requirement address the scientific method/process. Not so much an issue of the structure of groups.

Same issue with lab: what is a lab? Some felt the lab requirement is important because it is a way of thinking students won’t get in other curricular areas.