

# College of Liberal Arts (Key=18)

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**(Email 2/21/2022)** For the CIM proposals submitted by CLA there are two separate issues.

First, to clarify terminology the way I use it here.

A foundational course is a course taught in the corresponding discipline because of the expertise needed. For example, PH211 is a foundational course. The physics department is (or should be) current in the best pedagogy for the course. The course has to be broad and put the material in a large context, so students can understand the important concepts in the discipline. If a student switches from say mechanical engineering to mathematics this course will still fulfill the degree requirements, it is transferable.

An applied course uses foundational material in the context of the discipline where this reasoning is used. The emphasis is now on using the foundational material and show where the limitations are for this particular discipline. It is not a broad course, and is in general not transferable. There can be good reasons for developing such a course.

For example, MTH 351, Introduction to numerical analysis, is a foundational course for students who need a thorough understanding of the foundations of numerical methods. On the other hand, PH365, Computational physics laboratory, is an applied course using numerical analysis to explore physics problems. Some foundational material is explained in PH365, but it is a course designed for the physics program only.

Back to the proposals. The first item pertains to the CLA college requirements.

"Two math or statistics courses at the 200-level or above or above taught by MTH or ST or a quantitative course required by a CLA major (6-8 credits). "

This is understood as requiring two foundational courses, taught in math or stats. No exceptions.

Then following statement then does not make sense

"Courses satisfying quantitative requirements of a CLA major may be taught within that School" because programs can always teach additional applied courses in their own field.

Of course, CLA has the complete right to set their own curriculum, and perhaps the following is intended:

"Two quantitative courses are required. Math or statistics courses at the 200-level or above or above will automatically fulfill this requirement."

From the CLA college wide perspective, is the quantitative aspect or the foundational aspect more important?

The second issue pertains to the dividing line between foundational courses and applied courses. In this particular case the question evolves around PSY298. Looking at the syllabus

one gets the impression that it is a foundational course and not an applied course. To be honest, there are several other courses on campus that give a similar impression.

From a pedagogical point of view, there are good reasons to teach foundational material within the narrow context of the applied discipline, but also equally good reasons to teach foundational material more broadly inside the foundational discipline. The discussions around this divide are over a hundred years old. Most larger organizations, however, have chosen the foundational discipline route. It allows students to change major without having to retake foundational courses. It avoids duplicating resources. And with discipline based educational research strongly developed, it makes more sense from a pedagogical perspective as well. OSU has not taken a fundamental stance on this matter, so the Curriculum Council has in the past often not paid attention to this, because they had no guidance. This will require discussion at some level, but I am not sure where it should start.

Of course, if a department offers a foundational course and students from another department seem to struggle more in that course (psychology majors in statistics, for example) both departments should work together to determine what is the cause and how the problem can be addressed. The outside review of the psychology program asked only the psychology faculty to address this question, which is all such a review can do. There were initial meetings between the two departments, which I attended. The only conclusion that was reached, as far as I can remember, is that it is a math thing. I am curious if further follow up led to a better understanding.

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## John Edwards, Associate Dean, College of Liberal Arts

**(Email 2/22/2022)** Thanks, Henri. As we've discussed, there's a lot here that both of our colleges need to have clarified. My 2 cents:

1. There are really two issues involved in the CLA B.S. proposal, and I think it confuses things to conflate them.
  - a. One concerns **whether CLA social science disciplines can stop requiring the college-level B.S. requirements**. The CLA B.S. requirements as they stand now are a strange anachronism on campus. They are an "overlay" of courses on top of major requirements. The practice everywhere else in the university is for the B.S. to be attached to the *major* with no additional college-level coursework. Outside of CLA, there are no majors offering a B.S. that have college-level requirements. Therefore, part of the proposal concerns freeing up the few majors we have that involve focused scientific curriculum to be able to remove this additional course overlay. This overlay makes no sense for those majors and requires relevant students to take additional classes for no purpose. Note that the CLA B.S. proposal simply says that such majors can put a proposal into CIM to no longer require the college-level requirements. It's still up to the faculty senate committees to rule on such proposals. The PSY proposal is one such proposal. However, all three of the majors that strike me as potentially falling into this category already have stat/math courses on the books that students are taking and applying to their major right now. Denying the CLA proposal doesn't change that fact. It also would constitute a double-standard since the entire rest of the university is playing by a different set of rules with regards to the B.S., including several teaching stats in-house.
  - b. The other issue concerns **CLA majors that are not scientific in nature** and have no quantitative requirements but currently offer a B.S. (e.g., Art History). In my view, those majors **should require some additional scientific/quantitative coursework** from outside of the major. The part of the

proposal that revises the math portion of the current B.S. requirements concerns those majors.

2. **The college-level B.S. requirements are quite old** and appear to have had no deeper rationale than “majors with a B.S. should have some quantitative content”. Originally there were no specific requirements for the B.S. at all. Later (1995) “quantitative studies” was added, with no particular courses specified. PSY at the time taught its own quant course as part of a stats and methods sequence as did ECON and SOC. My memory is that PSY stopped teaching this for staffing reasons as the department faculty got quite small in the late 1990s. ECON and SOC never stopped.
3. I think Henri’s thoughtful discussion of the “Foundational” versus “Applied” distinction is useful. However, **the sentences in question aren’t meant to be deeply philosophical or communicate a college intent**. They are just catalog language trying to communicate to students that for some majors, the math B.S. requirements are met by the major requirements.
4. Until fairly recently, OSU didn’t have any guidance around what a B.S. should involve, but we do now: <https://apa.oregonstate.edu/academic-programs/academic-policies-and-procedures> . Basically, the CC said that majors offering a B.S. should go beyond courses taken in the Bacc Core and represent “**focused curricula...to meet the needs for...problem solving in the field of study**”. We could parse what this means for applied versus foundational courses, but it may be useless as it’s my understanding is that this came up for a particular major (in Business?) that wanted to do a B.S. and the CC wanted to make sure the B.S. requirements were equal in difficulty to the B.A. requirements.
5. **The major transfer maps may force our hand** in some instances, either towards or away from unit-taught foundational classes. PSY has been in MTM discussion for a while. The PSY proposal involves a 3-course stats and methods sequence modelled after U of O’s curriculum that is designed to integrate research methods and statistics in a cohesive way across multiple courses. Whether the stat portion of that can be parceled out, I don’t know.
6. **Psychology departments virtually always teach statistics in-house**, so it’s not the case that at most institutions psych departments do this via a statistics or math department. There are 17 universities that OSU lists as metric or orange peers, top ten land grant, or Oregon peer (U of O & PSU). Out of those universities, there are only two for which psychology department has its undergraduate statistics taught by a Stats department (NCSU & Florida). This isn’t because these universities don’t have a Stats department as only U of O does not. One of the reasons PSY departments do this is that within the field of psychology there is a Quantitative Psychology subfield. There are psychology faculty with graduate majors and minors in quant who have the training to do the statistical teaching. Certainly not every psychologist has the relevant expertise to teach statistics to psychology students and I wouldn’t want them to. I think CLA and Science are in alignment around the notion that experts should be teaching Foundational classes. The question, still unanswered at OSU if not elsewhere, is how we determine expertise. **I actually think expertise is the key question here**. Of course, as soon as units start using grad students to teach things get ambiguous, but I supposed if there is some specific training and faculty in charge that could work out.
7. **The internal transfer issue really isn’t a concern** in a practical sense. CLA majors rarely transfer to other OSU majors for which the STAT articulation would be problematic. The heavy majority of our students transfer to Business or HDFS. HDFS teaches statistics in house and so far as I know takes PSY 298.