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# Integrative Learning Core Course Proposal

# Quantitative and Formal Reasoning

## Section One: Course Information

1. Select the course type.

* A *new course listing* is a proposal for a course that is new to the ILC and has never been approved for general education.
* A *course renewal* is an approved general education course proposing to be certified as an ILC course.

1. Course Information *(e.g.: PHIL/1000/ Introduction to Philosophy, 3cr).*

* Designation
* Number
* Title
* Semester credits

1. Course Coordinator (or Instructor) Information.

* First Name
* Last Name
* Email Address

1. Delivery mode (mark all that apply). If additional explanation is needed, attach any supporting documents prior to submission.

* Face to Face (Traditional)
* Hybrid (Traditional)
* Online (Traditional)
* LSU Online
* Dual Enrollment

1. Louisiana BOR area (mark only one\*).

* English Composition
* Fine Arts
* Natural Sciences (Physical)
* Natural Sciences (Life)
* Humanities
* Mathematics /Analytical Reasoning\*\*
* Social / Behavioral Sciences

*\*Honors (HNRS) courses housed in the Honors College will have the option to mark all that apply.*

*\*\*Math, Statistics, and Logic Courses Only*

1. Provide a brief explanation of why the course should be listed in the chosen Board of Regents Area.

## Section Two: Primary Proficiency and Assignments

Integrative learning is an understanding that a student builds across the curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus.

***Quantitative and Formal Reasoning*** is a "habit of mind" proficiency, focused on competence and comfort in working with numerical data and formal systems. It includes using mathematical skills and concepts, analytical reasoning, and problem-solving for application in higher-level mathematics and logic courses and in everyday work and life situations. Individuals with strong Quantitative Reasoning skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate). Individuals with strong Formal Reasoning skills possess the ability to reason in and about formal systems and structures (mathematical, logical, linguistic, and computational) using formal mathematical and logical methods. They understand and appreciate the universal applicability of these formal methods. ***Quantitative and Formal Reasoning Dimensions***: 1) interpretation, 2) representation, 3) calculation, 4) application/analysis 5) assumptions, 6) communication.

In *Section Two*, the course coordinator/instructor will demonstrate how the course contributes to the Integrative Learning Core by choosing a primary ILC proficiency and describing the sorts of assignments, across all course sections, that may be used to evaluate student achievement of that primary proficiency. Please note: at least 20% of the course content and at least 20% of the course grade must address the proficiency.

1. Provide a brief explanation of how this course aligns to ***Quantitative and Formal Reasoning.***
2. Describe what percent of the course content (e.g., lectures, discussions, course topics and objectives, readings, textbook coverage, etc.) will link to the Quantitative and Formal Reasoning primary proficiency.  The minimum allowed for an ILC course is 20%.  *NOTE: This question is not asking about your student’s course grade calculation or your ILC assessment plan.*
3. Describe what percent of the student’s course grade (e.g., homework, quizzes, tests, essays, reports, research papers, presentations, portfolios, performances, etc.) will link to the Quantitative and Formal Reasoning primary proficiency.  The minimum allowed for an ILC course is 20%.  *NOTE: This question is not asking about your course content or your ILC assessment plan.*
4. Describe how the pedagogies and assignments utilized to develop proficiency in Quantitative and Formal Reasoning primary encourage development of higher-level thinking skills (i.e. apply, analyze, evaluate, create).

## Section Three: Assessment Process

Each ILC course will include a course-specific assessment plan. This plan details how each instructor for a given ILC course will collect and analyze data that assesses the primary proficiency and corresponding dimension(s) that are addressed in the course.  Assessment data are collected by section and aggregated to the course-level according to the assessment criteria you describe below.

Instructors have two choices as they develop this plan.

Option A: Instructors may select one or more of the default ***Quantitative and Formal Reasoning*** dimensions to be addressed in the course: ***1) interpretation, 2) representation, 3) calculation, 4) application/analysis, 5) assumptions, 6) communication.***

Option B: Alternatively, if the instructor prefers not to assess at least one of the default dimensions, the instructor(s) have the discretion to identify at least one alternative dimension to assess the proficiency, and present a rubric for determining the level of achievement (not approaching, approaching, meeting, exceeding) attained by students in the class. These alternative dimensions and assessment protocols must be approved at the department level, either by the department head, an assessment committee, or an individual designated as assessment coordinator. The assessment plan will then be submitted to the ILC committee for approval, with departmental approval indicated as usual by the department head signature.

1. Identify which of the following dimension(s) of ***Quantitative and Formal Reasoning*** you will use for ILC Course Assessment. A minimum of one dimension is required, additional dimensions are encouraged.

* Interpretation
* Representation
* Calculation
* Application/analysis
* Assumptions
* Communication
* Other: The above default dimensions will not work for my course, I am choosing alternative dimension(s) and will attach a completed department-approved [*ILC Course Assessment Plan*](https://lsu.box.com/s/ef2wmolz98wqz0gqazfkbg32sdn3pehi) based on non-default rubric dimension(s) for the course. Skip to Section Four.

1. Clearly identify the instrument(s) that will be used and how they will be used to assess the dimension(s) chosen.  Courses with multiple sections/instructors may opt to use different assessment instruments but all will assess the same proficiency and dimension(s). Review the [ILC Instrument(s) Choices and Assessment Guidance.](https://lsu.box.com/s/ok2mz1dqdqn4w6v40hubemyjb8rv8lx8)
2. The ***Quantitative and Formal Reasoning*** [Rubric](https://lsu.box.com/s/r44wmpw7lu0s2srqve4e74goelvw09bx) includes four achievement levels: not approaching, approaching, meeting, and exceeding.Please describe the criteria that will define these levels in your assessment for each dimension chosen in Question 11. Review the below example for guidance.

*The assessment criteria for assessing interpretation is:*

* *Exceeding: Students receiving a score of 90 or above (out of 100).*
* *Meeting: Students receiving a score of 80-89.9*
* *Approaching: Students receiving a score of 70-79.9*
* *Not Approaching: Students receiving a score of 69.9 and below*

*The assessment criteria for assessing calculation is:*

* *Exceeding: Student answers 10-11 questions correctly*
* *Meeting: Student answers 7-9 questions correctly*
* *Approaching: Student answers 5-6 questions correctly*
* *Not approaching: Student answers below 1-4 questions correctly*

1. Departments must sample no fewer than a majority of sections annually for each course. At least one of those sections must come from each semester the course is taught, including summer and intersession ***(with the exception of sections taught as part of a Study Abroad program)***. In addition, at least one section must come from each modality (in-person, hybrid, remote, asynchronous) by which the course is taught. A common standard for sampling is work from 10% of the students, or 10 students, whichever is greater, but this may be problematic for large classes, depending on the assessment instrument chosen. You do not need to sample; if you prefer to submit data from your entire class (the entire population), you are free to do so.

## Section Four: Secondary and Tertiary Proficiencies

OPTIONAL: Although not required, the Faculty Senate ILC Committee encourages instructors to consider a Secondary and Tertiary proficiencies; **however**, these proficiencies will not be assessed at the ILC level. We would like this information for future years when the OIE looks at proficiencies that LSU students are being exposed to.

Secondary Proficiency (mark only one):

* Civic Engagement
* Ethical Reasoning
* Global Learning
* Inquiry and Analysis
* Intercultural Knowledge and Competence
* Oral Communication
* Problem Solving
* Quantitative and Formal Reasoning
* Written Communication

Tertiary Proficiency (mark only one):

* Civic Engagement
* Ethical Reasoning
* Global Learning
* Inquiry and Analysis
* Intercultural Knowledge and Competence
* Oral Communication
* Problem Solving
* Quantitative and Formal Reasoning
* Written Communication

## Checklist

Before submitting an Integrative Learning Core (ILC) course proposal, please ensure all components in the checklist are complete.

* Signature page is signed by all parties.
* All sections and questions of the ILC course proposal are completed.
* If other was indicated for Question 11, the department-approved ILC Course Assessment Plan is attached.
* A sample syllabus with the ILC language is attached.

**If you have Integrative Learning Core (ILC) questions or are ready to submit your completed proposal, please email**[gened@lsu.edu.](mailto:gened@lsu.edu)