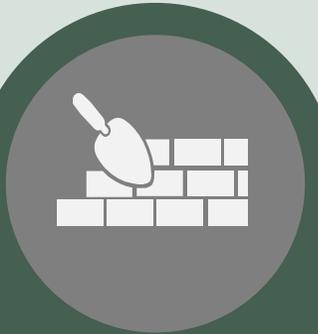


BRICKS Workshop Series

BRICKS Foundations: Quantitative Reasoning

BRICKS: General Education Program (38 hours)

FOUNDATIONS



11
HRS

1. *Written Communication (3)
2. Advanced Writing (3)
3. *Quantitative Reasoning (3)
4. Intercultural Explorations (2)

PILLARS

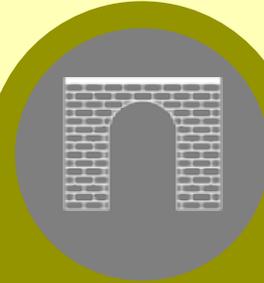


12
HRS

Quantitative Reasoning:
✓ 3 credit hours
✓ 1000 or 2000 level
✓ OTM-approved

3. *Natural Sciences (3)
4. *Social or Behavioral Sciences (3)

ARCHES



9
HRS

1. *Constructed World (3)
2. *Natural World (3)
3. *Connected World (3)

BRIDGES



4
HRS

1. Speaking & Listening (1)
2. Diversity & Practice (1)
3. Ethics & Reasoning (1)
4. Learning & Doing (1)

CAPSTONES



2
HRS

1. Capstone or Culminating Experience (2)

* All options must be OTM-approved.

OHIO Learning Outcomes

Quantitative Reasoning courses are expected to provide teaching and learning opportunities to achieve **six quantitative reasoning** learning outcomes. OHIO defines quantitative reasoning as “a habit of mind, competency, and comfort in working with numerical data.”

Interpretation. Students will be able to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).

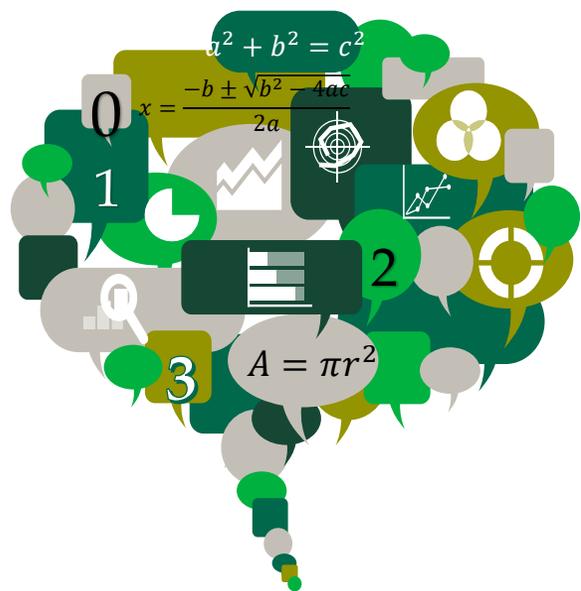
Representation. Students will be able to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Calculation. Students will be able to calculate relevant information using various mathematical formulas.

Application / Analysis. Students will be able to make judgments and draw appropriate conclusions based on the quantitative analysis of data while recognizing the limits of this analysis.

Assumptions. Students will be able to make and evaluate important assumptions in estimation, modeling, and data analysis.

Communications. Students will be able to express quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized).



QUANTITATIVE
REASONING

OTM Learning Outcomes

Quantitative Reasoning courses are expected to be approved by the Ohio Department of Higher Education (ODHE) as meeting at least one learning outcome and all course guidelines for Ohio Transfer Module (OTM) Mathematics, Statistics, and Logic courses.

Learning Outcomes (Select 1 or more)

- a. *Communicate effectively*: All general education programs include a component for writing; many also include a component for oral communication or presentation
- b. *Evaluate arguments in a logical fashion*: Competence in analysis and logical argument are explicit learning goals for most general education programs, although these skills go by a variety of names (e.g., critical thinking, analysis, logical thinking, etc.)
- c. *Employ the methods of inquiry characteristic of natural sciences, social sciences, and the arts and humanities*: The tools for solving problems vary across disciplines; general education introduces students to methods of inquiry in several fields of study and thereby prepares students to integrate information from different disciplines
- d. *Acquire an understanding of our global and diverse culture and society*
- e. *Engage in our democratic society*: One of the overarching goals of general education is to prepare students to be active and informed citizens, the development of a disposition to participate in and contribute to our democracy in full is of equal importance to the goal of having the skills to do so intelligently.

OTM Guidelines

Quantitative Reasoning courses approved by the Ohio Department of Higher Education (ODHE) must meet all course guidelines for Ohio Transfer Module (OTM) [Mathematics, Statistics, and Logic](#) courses.

Guidelines (all 4)

#1: A credit-bearing, college-level course in Mathematics must use the standards required for high school graduation by the State of Ohio as a basis and must do at least one of the following: 1) broaden, or 2) deepen, or 3) extend the student's learning.

#2: The course does not cover variable learning outcomes from term to term.

#3: The course is not an upper-division course.

#4: The course is in the area of mathematics, or statistics, or logic.

OTM approval ≠ TAG approval

Ohio Transfer Module (OTM) approved courses are not the same as Transfer Assurance Guide (TAG) approved courses.

OTM

- Meets guidelines for an OTM category
- Reviewed under guidelines
- Guaranteed to transfer for the OTM category across institutions
- General education-specific

VS

TAG

- Matched to equivalent courses
- Reviewed for at least 70% equivalency (i.e., course content and learning outcomes)
- Guaranteed to transfer as the same course across institutions
- General education, pre-major, or major

Foundation or Arch?

OTM-approved Mathematics, Statistics, and Logic courses may fit into either Foundation: Quantitative Reasoning or Arches: Constructed World – but not both.

Characteristic	Foundations Quantitative Reasoning	Arch Constructed World
Common Goal Outcome(s)	Quantitative Reasoning	<ul style="list-style-type: none"> ✓ Quantitative Reasoning ✓ Critical Thinking and/or Teamwork
OTM Category	OTM Mathematics, Statistics, and Logic	OTM Mathematics, Statistics, and Logic
Topic Requirement	<i>none</i>	Fits with an Arch topic
Typical Bloom's Taxonomy levels	remember, understand	apply, analyze, evaluate

ICC Review

UCC's Individual Course Committee (ICC) will review Quantitative Reasoning courses to ensure that at three credit hours of formalized instruction is focused on teaching and learning quantitative reasoning learning outcomes.

This includes a review of the course:

- Description
- Learning outcomes
- Topics list
- Text/readings
- Key grade factors

OTM approval process completed or in-progress.

Sample Learning Outcomes

- *Generic statistics course*
1. Students will be able to explain and represent statistical information using equations and graphs.
 2. Students will be able to calculate point and interval estimates, probabilities, and mean differences.
 3. Students will be able to make judgments using p-values.
 4. Students will be able to identify assumptions used in hypothesis testing.
 5. Students will be able to make and evaluate important assumptions in estimation, modeling, and data analysis.
 6. Students will be able to describe statistical information in managerial terms.

Quantitative Reasoning: Summary

Must be at the 1000 or 2000 level.

Must be OTM-approved as Mathematics, Statistics, and Logic (completed or in-progress).

Must deliver teaching and learning opportunities to achieve all six quantitative reasoning learning outcomes.

Cannot be approved as an Arch

Will be reviewed to ensure that at least three credit hours are focused on teaching and learning quantitative reasoning learning outcomes.



THANK YOU