

Mathematical Reasoning Requirement at IU Northwest (DRAFT 07/17/2008)

What is the pedagogical purpose of the Mathematical Reasoning requirement beyond the foundation level?

The purpose of the Mathematical Reasoning (MR) requirement is to provide students with practice in mathematical reasoning, preferably in their major field, with substantive feedback provided by an instructor well-acquainted with the use of mathematics in that discipline. Departments and schools/colleges would be allowed considerable latitude in defining what sorts of experiences are most appropriate for their majors; consequently the sorts of MR courses offered by different units will vary.

The outcomes for the MR requirement provide that IU Northwest graduates will:

- Use mathematical models such as formulas, graphs, tables to draw inferences.
- Represent mathematical information symbolically, visually, numerically, and verbally.
- Demonstrate the ability to effectively use arithmetic, algebraic, geometric, logical and/or statistical methods to model and solve real world problems.

Instructors will provide a variety of course activities to accomplish these outcomes and to provide opportunities for students to create relevant products.

What are the standard guidelines and requirements for MR credit?

To qualify for MR credit, a course must require that students create papers, exams, or project that documents mastery of the outcomes listed above. The instructor is expected to provide criticism (in the form of written or electronic notes attached to assignments, or through private conferences) on the mathematical reasoning aspects of the course assignments.

What sorts of classes carry MR credit and who teaches them?

Discipline-specific MR courses must be taught at the 200-level or above by a qualified instructor. In most cases the instructor will be a full-time member of the faculty; under unusual circumstances the instructor may be a visitor or an adjunct faculty with the approval of the department/school.

How big are MR courses and sections?

Classes designated for automatic MR credit should be limited to 35 students.

Should students take MR courses in their majors?

Whenever possible, students should take MR courses in their major since these courses will be relevant to their future work within that field. MR courses are meant to further refine and develop mathematical skills that will have applications across the curriculum, but most specifically in a student's chosen major.

When should students take MR courses, and what are the prerequisites?

Students are expected to have completed a foundation mathematical reasoning course required for their major.

When is it appropriate for a student to receive a credit for MR by Special Arrangement?

It is appropriate only in exceptional cases and only with departmental and university approval and prior to enrollment. Students may meet the MR requirement in conjunction with individualized readings courses, supervised research, internships, or senior theses, as long as they meet the guidelines for MR credit.

Can a student earn MR credit for a course taken at another university?

IU Northwest will not consider coursework taken at another university for MR, unless the chair/dean in the student's major specifically makes such a request in writing. As evidence that a student has successfully completed work comparable to that done in the unit's own MR courses, the request must be accompanied by a copy of the course syllabus and all course products with instructor's comments.

How can faculty develop a new MR class and what do they need to do to get it approved?

Units that wish to offer MR courses should submit requests for a new course or change to an existing course to their school/college curriculum committee. That committee will verify that the proposed course meets the general MR guidelines. A signed copy of the form for a new course or change to the existing course with a syllabus must accompany the request.

Who will approve the MR designation?

A course will be designated as an MR course after the approval by the course originating school/college curriculum committee and then by the IU Northwest Curriculum Committee. After the approval by the second committee, the course will carry MR designation after its name in the subsequent course schedules and bulletins.