

Illinois State University
Department of Mathematics
B.A./B.S. Assessment Plan

Common Undergraduate Program Goals (Shared by all undergraduate sequences.)

Program Goal 1: Acquire knowledge of mathematics commensurate with career/sequence goals.

- Outcome Measure: Demonstrate an understanding of the key concepts in:
 - Mathematics (MAT)
 - Actuarial Science (AS)
 - Statistics (MST)
 - Secondary Mathematics Education (MTE)
- Data Needed: Measures of mathematical knowledge.
- Assessment:
 - Overall major GPA (Every semester)
 - Standardized Exams: MAT/MST – GRE; AS – Actuarial Exams; MTE – State Content & APT Exams. (When taken or at graduation)
 - Benchmark Course Grades (Every Year):
 - MAT – MAT 175, 247, Course sequences
 - AS – MAT 280, 380, 384
 - MST – MAT 350, 351, Upper division course pair
 - MTE – MAT 211, 236, 350, 323, Student Teaching Evaluation
- Outcome Measure: Currency of program
 - Data Needed: Program Review
 - Assessment:
 - Periodic review of programs using national recommendations, accrediting agencies, etc. (Every 5 years or less)
 - Faculty review of courses/content (Every 3-5 years)
- Outcome Measure: Satisfaction of current students, alumni, employers
 - Data Needed: Survey results
 - Assessment:
 - End of Semester evaluations (Every semester)
 - Alumni surveys (1 and 5 years after graduation)
 - MTE – EBI feedback, Graduate Survey Data (Yearly)

Program Goal 2: Construct and critically analyze mathematical arguments

- Outcome Measure: Demonstrate the ability to construct and analyze proofs
 - Data Needed: Sample, graded proofs
 - Assessment:
 - Course grades in any of MAT 175, 236, 330, 336, 337, 363 (every semester)
 - Faculty evaluation of student skills based on Department rubric (every semester)

Program Goal 3: Develop problem-solving skills, logical reasoning, and creative thinking

- Outcome Measure: Demonstrate the ability to solve problems, and apply mathematical knowledge to new problem situations.
 - Data Needed: Sample, graded applications and projects
 - Assessment:
 - Sample projects requiring synthesis of mathematics and applications to problems (not exercises) (Yearly)
 - Faculty evaluation of student skills in selected courses based on Department rubric. (Every semester)

Program Goal 4: Develop a positive attitude toward mathematics and its uses

- Outcome Measure: Demonstrate an appreciation of mathematics as a vital, growing field.
 - Data Needed: Attitude information
 - Assessment:
 - Online Beliefs/Attitude Survey (Graduation)

Program Goal 5: Use the language of mathematics to communicate ideas

- Outcome Measure: Be able to use mathematical terms appropriately and correctly.
 - Data Needed: Assignments that demonstrate correct oral and/or written use of mathematical language
 - Assessment:
 - Faculty assessment of student use of mathematical terms with Department Rubric. (Yearly)
- Outcome Measure: Demonstrate the ability to communicate mathematics
 - Data Needed: Examples of written work
 - Assessment:
 - Sample graded, written homework and projects. (Yearly)

Appendix 1. Bachelor's Beliefs Survey

The Mathematics Department is collecting the results of this survey to help assess our undergraduate mathematics programs. This survey is a REQUIRED part of the graduation portfolio for those completing an undergraduate major in the Mathematics Department. Individual respondents of this survey will not be assessed, but rather the aggregate responses will be used. For the following items, express to the extent of your agreement with each of the following statements by marking the appropriate response.

1. Solving mathematics problems does not require much originality and creativity.

Strongly Agree Agree Undecided Disagree Strongly Disagree

2. New theorems in mathematics are constantly being found.

Strongly Agree Agree Undecided Disagree Strongly Disagree

3. Taking courses in mathematics helps one to think according to rules.

Strongly Agree Agree Undecided Disagree Strongly Disagree

4. Justifying the mathematical statements a person makes is an extremely important part of mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

5. Although there are some connections between different areas, mathematics is mostly made up of unrelated topics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

6. Mathematics is mostly a set of rules of how to do problems.

Strongly Agree Agree Undecided Disagree Strongly Disagree

7. Although there may be many different ways to solve a mathematics problem, there is usually a best way to solve it.

Strongly Agree Agree Undecided Disagree Strongly Disagree

8. In mathematics, problems can be solved without using rules.

Strongly Agree Agree Undecided Disagree Strongly Disagree

9. Every college student should study some mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

10. There have not been many new concepts and ideas in mathematics in a long time.

Strongly Agree Agree Undecided Disagree Strongly Disagree

11. The main objective in taking mathematics courses is to learn how to think logically.

Strongly Agree Agree Undecided Disagree Strongly Disagree

12. I am successful in doing most mathematics problems.

Strongly Agree Agree Undecided Disagree Strongly Disagree

13. I enjoy doing problems in mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

14. I look forward to trying difficult mathematics problems.

Strongly Agree Agree Undecided Disagree Strongly Disagree

15. I feel good when I solve a mathematics problem myself.

Strongly Agree Agree Undecided Disagree Strongly Disagree

16. Knowing how to solve a problem is as important as getting the solution.

Strongly Agree Agree Undecided Disagree Strongly Disagree

17. It is important to know mathematics in order to get a good job.

Strongly Agree Agree Undecided Disagree Strongly Disagree

18. Learning mathematics involves mostly memorizing.

Strongly Agree Agree Undecided Disagree Strongly Disagree

19. I am looking forward to taking more mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

20. Mathematics has played an important part in the development of the civilized world.

Strongly Agree Agree Undecided Disagree Strongly Disagree

21. Using computers and calculators has helped me understand mathematics better.

Strongly Agree Agree Undecided Disagree Strongly Disagree

22. Using computers and calculators can make mathematics more interesting.

Strongly Agree Agree Undecided Disagree Strongly Disagree

23. I like to help others with mathematics problems.

Strongly Agree Agree Undecided Disagree Strongly Disagree

24. Memorizing rules and formulas is an important part of learning mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

25. Learning to do problem solving is an important goal in mathematics instruction.

Strongly Agree Agree Undecided Disagree Strongly Disagree

26. Computers and calculators are useful for learning mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

27. Listening carefully to the teacher explain a mathematics lesson is the most effective way to learn mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

28. Doing investigations in mathematics is an important way to learn mathematics.

Strongly Agree Agree Undecided Disagree Strongly Disagree

29. I continue trying new strategies when I encounter a problem that I cannot solve the first or second try.

Strongly Agree Agree Undecided Disagree Strongly Disagree

30. Mathematics plays an important role in today's society.

Strongly Agree Agree Undecided Disagree Strongly Disagree