Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: CORE Outcome: Critical Thinking

Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:

**Critical Thinking:** Develop and present a logical, consistent plan to solve a problem, recognize consequences of the solution, and articulate a reason for choosing solution method.

**Relevant Associations:**

- **Standard Associations**
  - New Core Component Areas
    - 8 Mathematics (MA)
  - New Core Objectives
    - 1 Critical Thinking (CT)

- **General Education/Core Curriculum Associations**
  - 1 Critical Thinking: Students will apply critical thinking appropriately to identify, analyze and resolve complex issues.

**Related Measures**

**M 1: CORE Outcome: Critical Thinking**

During the period between midterms and finals, the student will provide a complete solution and explanation for a problem that has not previously been used in an assignment or lecture. The problem will be appropriate for the material that has been completed in class to date. A written paper will be required and will be scored based on a rubric developed to evaluate the Core Curriculum Outcomes:

Critical Thinking: For this Outcome, the paper must include

1. An exact statement of the original problem,
2. A description of the student's plan to solve the problem,
3. A description of the possible consequences of the solution, and
4. A reason for selection the plan to solve the problem.

**Target:**

- Critical Thinking: At least 60% of students will be scored at the Milestones (2 or 3 points) or Capstone (4 points) level in 3 of the 4 areas on the rubric.

**SLO 2: CORE Outcome: Communication**

Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:

**Communication Skills:** Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format.

**Relevant Associations:**

- **Standard Associations**
  - New Core Component Areas
    - 8 Mathematics (MA)
  - New Core Objectives
2. Communication (COM)

**General Education/Core Curriculum Associations**

3. Communication: Students will develop written and oral presentations that are clear, precise, organized, efficient and appropriately adapted to audience and purpose.

**Related Measures**

**M 2: CORE Outcome: Communications**

During the period between midterms and finals, the student will provide a complete solution and explanation for a problem that has not previously been used in an assignment or lecture. The problem will be appropriate for the material that has been completed in class to date. A written paper will be required and will be scored based on a rubric developed to evaluate the Core Curriculum Outcomes:

Communication Skills: For this Outcome, the paper must include

1. Few, if any grammar errors,
2. A clear structure that flows from statement to solution, and
3. A clear explanation of the problem and interpretation of the solution.

**Target:**

Communication Skills: At least 60% of students will be scored at the Milestones (2 or 3 points) or Capstone (4 points) level in 2 of the 3 areas on the rubric. NOTE: Rubric in document area

**Source of Evidence:** Written assignment(s), usually scored by a rubric

**Target:**

Communication Skills: At least 60% of students will be scored at the Milestones (2 or 3 points) or Capstone (4 points) level in 2 of the 3 areas on the rubric. NOTE: Rubric in document area

**SLO 3: CORE Outcome: Quantitative Thinking**

Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:

**Empirical and Quantitative:** Construct and present a detailed problem statement with evidence of relevant contextual factors and possible approaches for solving the problem, then implement a solution and review the results.

**Relevant Associations:**

**Standard Associations**

- New Core Component Areas
- Mathematics (MA)
- New Core Objectives
  - 3 Empirical & Quantitative Skills (EQS)

**General Education/Core Curriculum Associations**

2. Quantitative Thinking: Students will demonstrate mastery of quantitative reasoning and algorithms used to address applied problems

**Related Measures**

**M 3: CORE Outcome: Quantitative Thinking**

During the period between midterms and finals, the student will provide a complete solution and explanation for a problem that has not previously been used in an assignment or lecture. The problem will be appropriate for the material that has been completed in class to date. A written paper will be required and will be scored based on a rubric developed to evaluate the Core Curriculum Outcomes:

Empirical and Quantitative: For this Outcome, the paper must include

1. A detailed problem statement, including relevant contextual factors and at least one alternate approach for solving the problem,
2. A detailed solution that is well structured and yields a correct answer, and
3. A review of the results of the solution.

**Target:**

Empirical and Quantitative: At least 60% of students will be scored at the Milestones (2 or 3 points) or Capstone (4 points) level in 2 of the 3 areas on the rubric. NOTE: Rubric in document area

**Source of Evidence:** Written assignment(s), usually scored by a rubric

**Target:**

Empirical and Quantitative: At least 60% of students will be scored at the Milestones (2 or 3 points) or Capstone (4 points) level in 2 of the 3 areas on the rubric. NOTE: Rubric in document area