

INTERDISCIPLINARY LIVELY APPLICATIONS PROJECT

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TITLE: LAKE POLLUTION

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CARRY-THROUGH SUBJECTS: DISCRETE MATHEMATICS, DIFFERENTIAL EQUATIONS, PROBABILITY, STATISTICS

MATHEMATICS CLASSIFICATIONS: DIFFERENCE EQUATIONS, DIFFERENTIAL EQUATIONS, DISCRETE MATHEMATICS,
 PROBABILITY, STATISTICS, LINEAR REGRESSION, LINEAR ALGEBRA

DISCIPLINARY CLASSIFICATIONS: ENVIRONMENTAL ENGINEERING

PREREQUISITE SKILLS:

1. MODELING WITH DIFFERENCE EQUATIONS
2. SOLVING FIRST- AND SECOND-ORDER DIFFERENCE EQUATIONS
3. SOLVING LINEAR SYSTEMS OF EQUATIONS
4. SOLVING LINEAR SYSTEMS OF DIFFERENCE EQUATIONS
5. MODELING WITH DIFFERENTIAL EQUATIONS
6. SOLVING FIRST-ORDER DIFFERENTIAL EQUATIONS USING NUMERICAL AND ANALYTIC METHODS
7. MODELING WITH STOCHASTIC PROCESSES (MARKOV CHAINS)
8. USING DESCRIPTIVE STATISTICS, CLASSICAL PROBABILITY, BAYES' THEOREM, AND PROBABILITY DISTRIBUTIONS
9. SOLVING LINEAR REGRESSION PROBLEMS

MATERIALS AVAILABLE:

- A. PROBLEM STATEMENT (6 PARTS) (STUDENT)
- B. SAMPLE SOLUTION (INSTRUCTOR)
- C. BACKGROUND MATERIAL (INSTRUCTOR)

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