**COURSE LEARNING OUTCOMES**

**DEPARTMENT:**

**Mathematics**

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| **COURSE #: 34600**  **COURSE TITLE: Elements of Linear Algebra**  CATEGORY: Required for Applied Math; Elective for Pure Math and Secondary Ed.  TERM OFFERED: Fall 2016  PRE-REQUISITES: Math 21200 or 20300 or departmental permission.  PRE/CO-REQUISITES:  HOURS/CREDITS: 3 hrs/wk; 3 credits. (After completion of Math 39200 only 2 credits will be given for Math 34600.)  DATE EFFECTIVE:1/22/07  COURSE COORDINATOR: Vladimir Shpilrain | **CATALOG DESCRIPTION**  Vector spaces, basis and dimension, matrices, linear transformations, determinants, solution of systems of linear equations, eigenvalues, and eigenvectors.  Suggested Text: *Linear algebra with Applications (Open edition),* by W. Keith Nicholson, Lyryx, 2021 (Revision A). |

**COURSE LEARNING OUTCOMES**

*Please describe below all learning outcomes of the course, and indicate the letter(s) of the corresponding Departmental Learning Outcome(s) (see list at bottom) in the column at right.*

After taking this course, the student should be able to

Contributes to

Departmental Learning

Outcome(s):

1. solve systems of linear equations; a, c, e2

2. evaluate determinants of square matrices; a, e2

3. compute inverses of square matrices; a, e2

4. demonstrate a knowledge of basic properties of vector spaces, subspaces, and their bases; c, e1, f, g

5. demonstrate a knowledge of the concepts of linear dependence and independence; e1, f, g

6. compute eigenvalues and eigenvectors of square matrices; a, e2

7. demonstrate a knowledge of basic properties of linear transformations c, e1, f, g

**COURSE ASSESSMENT TOOLS**

*Please describe below all assessment tools that are used in the course.*

*You may also indicate the percentage that each assessment contributes to the final grade.*

1. two term exams (60%)

2. final exam (40%)

**DEPARTMENTAL LEARNING OUTCOMES** *(to be filled out by departmental mentor)*

***The mathematics department, in its varied courses, aims to teach students to***

*a. perform numeric and symbolic computations  
b. construct and apply symbolic and graphical representations of functions  
c. model real-life problems mathematically  
d use technology appropriately to analyze mathematical problems  
e. state (e1) and apply (e2) mathematical definitions and theorems  
f. prove fundamental theorems*

*g. construct and present (generally in writing, but, occasionally, orally) a rigorous mathematical argument.*