Elementary Linear Algebra

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| **Course Title/Number** | **MTH 329** Sec 101, CRN 3182 |
| **Semester/Year** | Fall 2017 |
| **Days/Time** | M, W 3 – 4:15 |
| **Location** | SH 511 |
| **Instructor** | Dr. Karen Mitchell |
| **Office** | CB132 |
| **Phone** | (304) 696-3042 |
| **E-Mail** | [mitchelk@marshall.edu](mailto:mitchelk@marshall.edu) (karenmitchellmu@gmail.com) |
| **Office Hours** | M, W 1 - 3; T, R 1 – 2  If these hours do not fit your schedule, please call me or send me an email so that we can arrange another time to discuss your questions. |
| **University Policies** | By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to [www.marshall.edu/academic-affairs/policies/](http://www.marshall.edu/academic-affairs/policies/). Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment |

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**Course Description: From Catalog**

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| Systems of linear equations, matrices and determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and applications. 3 hours  PR: ACT Math 27, or a grade of C or higher in MTH132, MTH229, or IST131. |

**The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.**

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| **Course student learning outcomes** | **How students will practice each outcome in this course** | **How student achievement of each outcome will be assessed in this course** |
| use linear systems to model a range of problems and interpret the implications of the choice of solution strategies | group work, discussion, in-class tasks with and without technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| solve systems of equations by hand and through the use of technology | group work, discussion, in-class tasks with and without technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| work with matrices to organize data, solve linear systems, and apply results to applications and linear transformations | group work, discussion, in-class tasks with and without technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| manipulate vectors, both graphically and algebraically in order to address applications in areas like geometry, physics, and engineering | group work, discussion, in-class tasks with technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| develop the concepts of spanning sets and linear independence | group work, discussion, in-class tasks with technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| determine eigenvalues and eigenvectors | group work, discussion, in-class tasks with technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| understand the basic concept of orthogonality in higher dimensions | group work, discussion, in-class tasks with technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |
| communicate conclusions and connections using appropriate notation and vocabulary | group work, discussion, in-class tasks with and without technology, response sheets (low-stakes writing), practice presentations, homework | exam questions, quiz questions, writing assignments, presentations, homework |

**Required Texts, Additional Reading, and Other Materials**

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| **REQUIRED MATERIALS:**   1. Linear Algebra with Applications (Second Printing) by Jefferey Holt 2. 3-ring binder (suggested) 3. Marshall computer account   4) Graphing calculator |

**Course Requirements/Due Dates**

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| **TESTS:** Test I – September 20 (tentative)  Test II – October 25 (tentative)  Test III - November 15 (tentative)  Final - Monday, December 11, 3-5  **HOMEWORK:** *Homework problems* will be assigned at each class meeting. Some problems will be collected and graded. These will be due on the announced date. Other problems, like the introductory textbook activities, that are assigned to provide you with an opportunity to practice skills or examine concepts will not be collected. I will tell you at the time of the assignment if the problems are to be collected and graded. Since the homework problems are designed to help you prepare for tests and quizzes, you should always make sure you know how to do them. You may ask me questions about the homework assignments. You may discuss homework assignments with your classmates. It is, however, counterproductive for you to merely copy another student’s work. In *writing assignments* you will be asked to reach conclusions about problems from the text, the Web, or other situations. All writing assignments will be collected and graded. *Response sheets* are also always assigned points. *Class presentations* may include presentations to your partner or to the entire class. |

**Grading Policy**

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| **POINT VALUES:** Response Sheets: 5-10 pts. each  Announced Quiz: 20-50 pts. each  Writing assignments: 10-20 pts. each  Class presentation: 10-50 pts. each  Test: 100 pts. each  Homework: TBA  Final: 100 or 200 pts.  PROCEDURE USED TO DETERMINE GRADES: The total number of points you earn will be divided by the total number of points possible to determine your final percentage.  DEPARTMENTAL GRADING SCALE: 90 - 100 A  80 - 89 B  70 - 79 C  60 - 69 D  0 - 59 F |

**Attendance Policy**

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| **ATTENDANCE POLICY:** Since a significant amount of the material for the course is available only in class, attendance is imperative. You are responsible for all notes and assignments given during any absence. If you are absent when a response sheet, group activity, or other in-class assignment is given, it cannot be made up. If you are aware that you will be missing a test or an announced quiz, make arrangements to make it up before you leave. If some emergency forces you to miss an exam or quiz, see me as soon as you return to class. The Academic Affairs policy for excused absences can be accessed at <http://www.marshall.edu/academic-affairs/?page_id=802> as well as other university-wide policies. If you have an excused absence for a class assignment that cannot be made up, an alternate assignment will be made. |

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| **COURSE Content:**   1. Solving systems of linear equations 2. Matrices 3. Determinants 4. Euclidean Space 5. Subspaces 6. Vector Spaces 7. Linear Transformations 8. Eigenvalues and Eigenvectors 9. Orthogonality 10. Applications |

**Course Schedule based on sections in the adopted text:** See the assignment sheet in Blackboard